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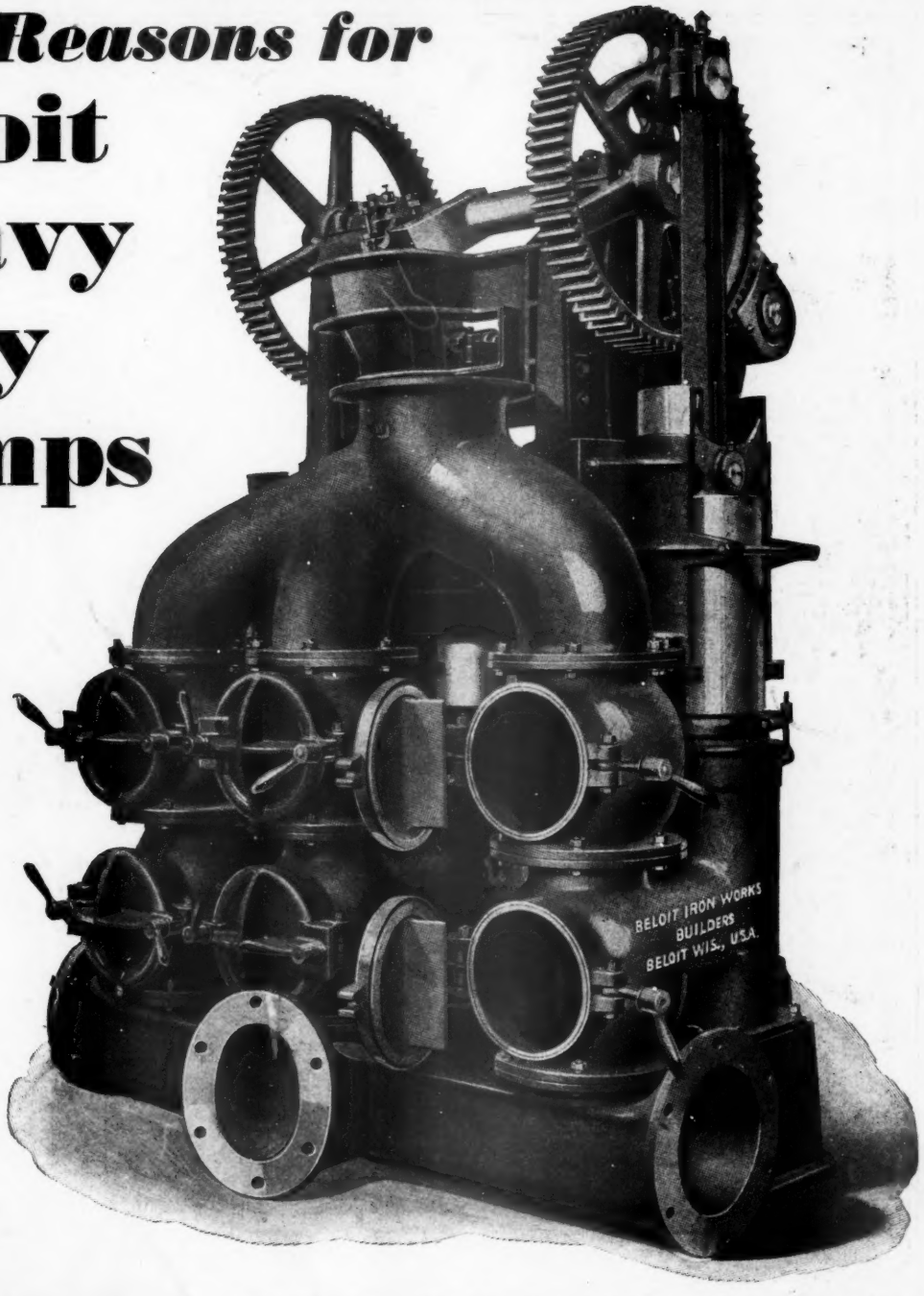

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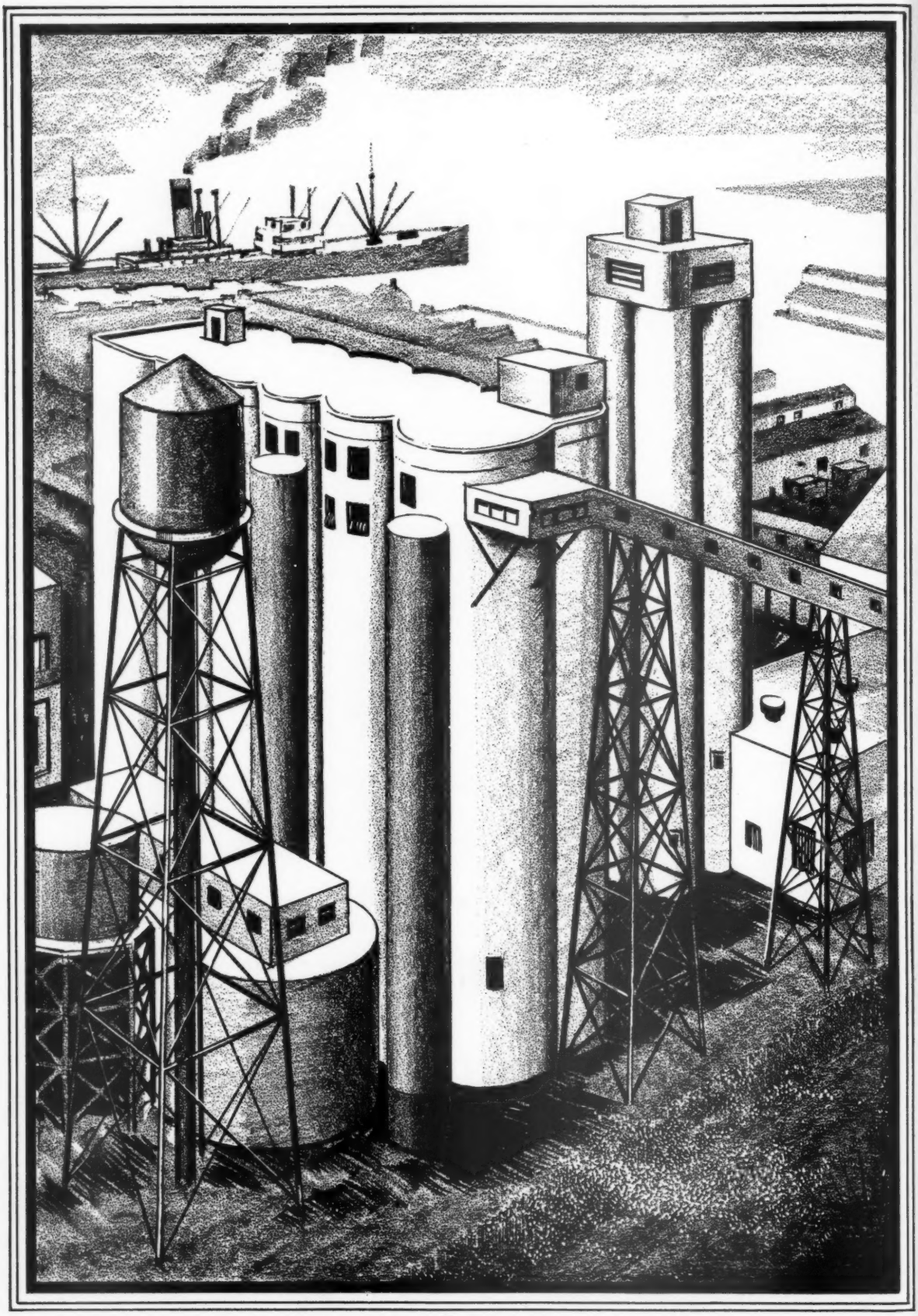

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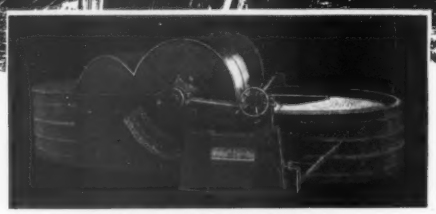

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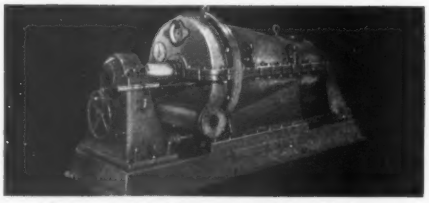

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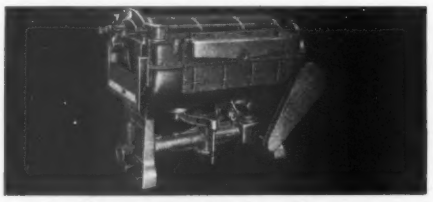

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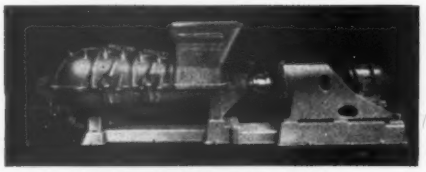

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COMPARING THE GROWTH RATE OF SOUTHEAST GEORGIA PINE and PACIFIC COAST HEMLOCK and SPRUCE

Annual Growth Per Acre 2.1 Times Greater on Pacific Coast

By DAVID E. HERVEY*

WITH a new era of expansion in the pulp and paper industry close at hand the comparative advantages and disadvantages of the various pulp producing regions of the United States are of paramount interest. The problem of securing ample fibrous raw materials at profit allowing prices is gradually increasing in importance as a controlling factor of production. The southern pine region and the Pacific Northwest coastal region are probably the highest bidders for this new industrial expansion. Intelligent planning for future production in either region will take into account the competitive features of the other.

The purpose of this paper is to show the comparative rate of growth of pulpwood in one definite area within each of the two aforementioned regions as indicated by the best statistics available. In southern pine region the area selected was Georgia Survey Unit No. 1 (10,000,000 acres in southeast Georgia), and in the Northwest the fog belt area along the coast. These areas are believed to be one of the most suitable within their respective regions for practicing sustained yield management. For sake of comparison the rate of growth of the two regions has been based on 100 per cent normal stocking. In order to arrive at the true production of the present timber generation each must be discounted according to its degree of normalcy. Under intensive management, however, a given area will often substantially exceed in production a comparable unmanaged area of 100 per cent normal stocking. In South Georgia fire is responsible for a low degree of stocking in some places. In the spruce hemlock coastal belt, on the other hand, most of the cut over land is now supporting a good stand of second growth timber and there is very little of the clean cut nonrestocking area. This differential is not weighed in the following computations as no statistics are available for the southern region.

In order to arrive at the maximum annual production under normal conditions for each type, the age of the stand which showed the greatest annual production in cubic feet was selected as the year of harvest. Thus in Southeast Georgia the longleaf pine type reached its peak at 50 years, slash pine at 20 years, and loblolly at 40 years. In the North Pacific Coast hemlock, spruce type, average annual cubical increment remains practically constant from the ages of 60 to 80 years.

GEORGIA SURVEY UNIT NO. 1

From the data compiled in a recent U. S. Forest Service survey of the Unit a table showing "Pine Site Indices by Types" has been produced.* This in conjunction with USDA Miscellaneous No. 50, "Volume, Yield and Stand Tables for Second Growth Southern Pines" gives the necessary data.** Tables I and Ia below show the average annual per acre production for this area.

TABLE I

WEIGHTED AVERAGE ANNUAL PRODUCTION IN CUBIC FEET OF PULPWOOD FOR ONE ACRE

Region I—Southeast Georgia[1]

Total Stand[2] Site Index (Feet), Total Height @ 50 Years.	Per Cent of Site Index In Region 1. Georgia	Growth Per Acre Per Year (Cubic Ft.)	Normal Stocking Proportional Vol. for Each Index
	Longleaf Pine[3]	42% of the Area	
40	.2	19	.038
50	4.2	35	1.470
60	53.3	56	29.848
70	36.4	79	28.756
80	5.0	101	5.050
90	.7	124	.868
100	.2	143	.286
Total	100%	Weighted Average	66.316
	Slash Pine[4]	46% of the Area[5]	
50 and 60[6]	37.3	90	33.570
70	47.0	112	52.640
80	13.8	135	18.630
90	1.6	155	2.480
100	.3	175	.532
Total	100%	Weighted Average	107.845
	Loblolly Pine[7]	12% of the Area	
50 and 60[8]	11.3	75	8.475
70	20.8	92	19.136
80	33.4	110	36.740
90	19.6	130	25.480
100	12.8	152	19.456
110	2.1	176	3.696
Total	100%	Weighted Average	112.983

*Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, Hotel Waldorf-Astoria, New York City, February 17 to 20, 1936. United States Forest Service, Region 8, Atlanta, Georgia.

TABLE Ia

Forest Type.	Growth in Cu. Ft. Per Acre Per Year	Per Cent of Type in Unit One, Ga.	Weighted Annual Growth in Cu. Ft.
Longleaf Pine	66.316	42%	27.85
Slash Pine	107.845	46%	49.61
Loblolly Pine	112.983	12%	13.56
Totals		100%	91.02

This analysis shows that the average acre of normally stocked forest land in Georgia Survey Unit No. 1 will produce approximately 91 cubic feet of pulpwood annually under normal conditions provided each type is segregated on the ground and logged at its year of maximum mean annual increment.

[1] 10,000,000 Acres in southeast Georgia.
[2] Trees 1.6 inches DBH and over.
[3] Taken from table 72 USDA Miscellaneous Publication No. 50.
[4] Taken from table 36 USDA Miscellaneous Publication No. 50.
[5] Slash Pine 45 per cent and other pines 1 per cent were classified together.
[6] Index 50=1.2 per cent, 60=36.1 per cent; no table for index 50 is available.
[7] Taken from table 40 USDA Miscellaneous Publication No. 50.
[8] Index 50=.5 per cent, 60=10.8 per cent; no table for index 50 is available.

*From Southern Forest Experiment Station "Occasional Paper No. ....."

**The tables given in USDA Miscellaneous No. 50 apply to pure stands of the species and not to the types referred to in the survey table which require only a minimum of 51 per cent stocking of the species from which the type receives its name. (Example: slash pine type requires that 51 per cent or more of the stocking be slash pine). However, it is assumed that for all practical purposes the proportion of the stocking of other species in each type runs in the same proportion as the percentage of other types within the survey unit.

NORTH PACIFIC COAST FOG BELT REGION

Cubic foot yield tables for the western hemlock-Sitka spruce type have been compiled as a result of the recent forest service survey in that region.* Also the approximate percentages of each site index based on the plots taken in the survey have been computed. Following is Table II showing the indicated average annual yield in cubic feet of solid wood at ages 60 to 80 years.

* Data unpublished to date.

This analysis indicates that the average acre of normally stocked western hemlock-Sitka spruce type in the coastal fog belt area will produce approximately 178 cubic feet of pulpwood annually under normal conditions or practically twice (1.97 times) as much as the average acre in southeast Georgia.

The following chart illustrates the mean annual increment for the two regions and for the spruce fir types in the northeast. (All three pine types are considered harvested together in southeast Georgia.)

The uppermost or solid curve represents the spruce hemlock type in the Pacific Northwest,* the dash curve the three pine types in southeast Georgia,** and the dotted curve the spruce and fir types in the northeast. The value used in the

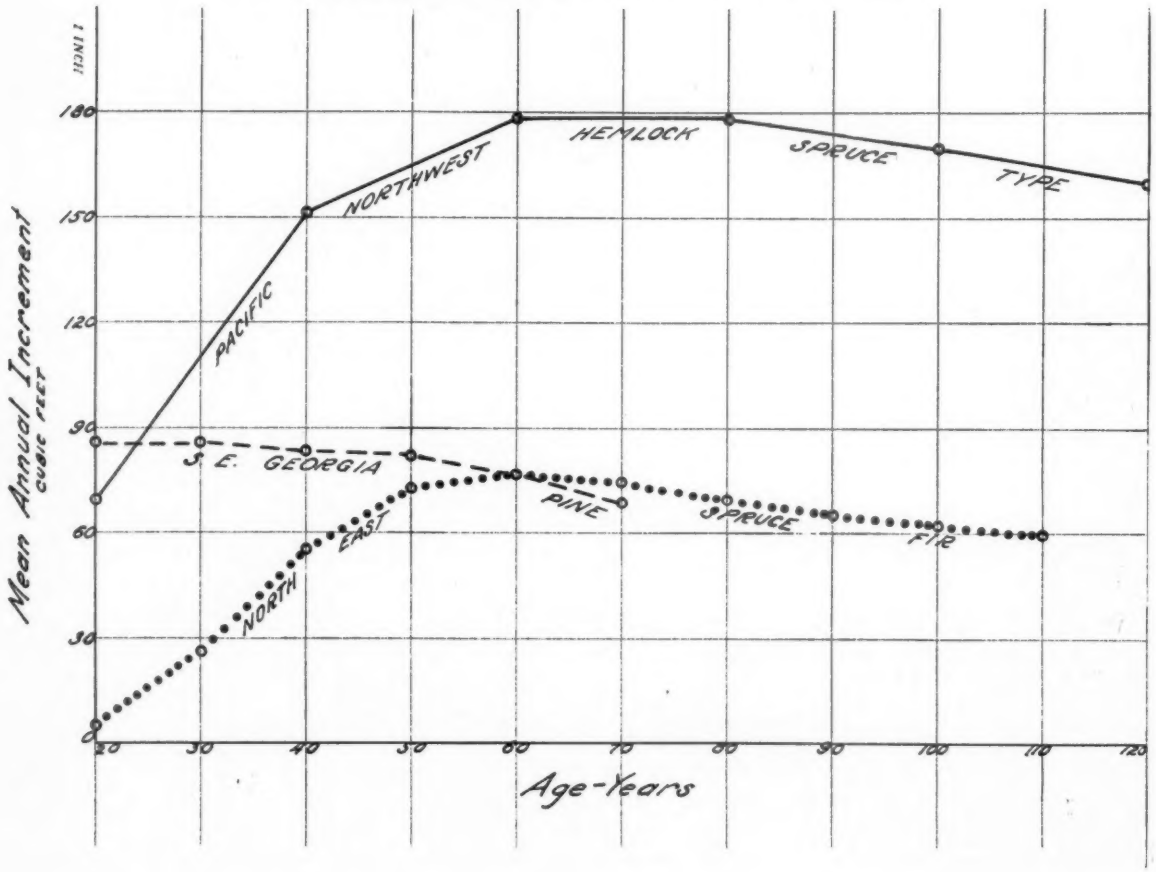
[1] All trees 1.6 inches DBH and over.

TABLE II

WEIGHTED AVERAGE ANNUAL PRODUCTION IN CUBIC FEET OF PULPWOOD FOR ONE ACRE IN THE NORTH PACIFIC COAST FOG BELT
Age 60 to 80 Years

Total Stand[1] Site Index (Ft.) Total Height at 50 Years.	PerCent of Site Index in the Fog Belt, Wash. and Ore.	Normal Stocking Growth in Cu. Ft. Per Acre Per Year	Normal Stocking Proportional Vol. for Each Index
50 to 69	2.1	60	1.3
70 to 89	6.4	89	5.7
90 to 109	16.9	119	20.1
110 to 129	25.7	155	39.8
130 to 149	20.1	197	39.6
150 to 169	19.8	237	46.9
170 to 189	8.5	268	22.8
190 to 209	.5	296	1.5
Total	100%	Weighted Average	178 cu. ft.

MEAN ANNUAL INCREMENT FOR FULLY STOCKED STANDS



dotted curve are approximations based on yield tables No. 6, 33 and 39 of USDA Technical Bulletin No. 142, "Second Growth Spruce and Fir in the Northwest," by Walter H. Meyer and his estimate of the per cent of each site index within the region which he kindly submitted to the author.

From the foregoing chart it is seen that maximum mean annual increment for southeast Georgia (all types) is 86 cubic feet and for the Pacific Northwest 178 cubic feet or a ratio of 1 to 2.1. From this the average future pulpwood haul is computed to be 1.46 times as great as southeast Georgia (V 2.1).

The above chart also shows the indicated rotation for maximum production to be approximately half as long in southeast Georgia as in the Pacific Northwest. This together with a 1 to 2.1 ratio in mean annual increment indicates that the future logging acreage for unit cut will be approximately 4.2 times as great in southeast Georgia.

* Source of data same as for Table II.
** Source of data same as for Tables I and Ia.

EDITORIAL COMMENTS ON MR. HERVEY'S PAPER

The facts presented by Mr. Hervey in his paper make a very strong case for the Pacific Northwest as a permanent center for a large pulp and paper industry.

Two points of Mr. Hervey's conclusion are illuminating as to the advantages of timber growing in the Pacific Northwest as compared with timber growing in Southeast Georgia, the area he selected for comparison.

Mr. Hervey finds that the Pacific Northwest hemlock and spruce forests annually grow 2.1 times more wood per acre than do the pine forests of Southeast Georgia. His other conclusion is a corollary to the first. Logging acreage in Southeast Georgia necessary to support a pulp mill will have to be approximately 4.2 times greater than the acreage in the Pacific Northwest to supply the same size pulp mill.

It is important to note that Mr. Hervey's comparisons embrace woods that are at present only partially competitive. Western hemlock and Sitka spruce are employed in the manufacture of sulphite, kraft, soda and groundwood pulps. The three Southern pines he compares with hemlock and spruce are longleaf, loblolly and slash. These are established on a large scale commercially in kraft and soda pulping processes only. Whether the Southern pines become competitive with Western hemlock in the production of sulphite remains for the future to determine.

It is also important to bear in mind that should a modified sulphite process be adapted commercially to pulping Southern pine, it is said by Pacific Coast mill operators that the same process will work equally well with Douglas fir, the major lumber species of the Pacific Northwest. Douglas fir is today being used in increasing quantities in the kraft and soda processes, as much has been learned concerning its pulping qualities in recent years.

During the past several years there has been widespread discussion throughout the pulp and paper industry concerning the growth rate of Southern pines as compared with Western hemlock (the Pacific Coast's principal pulpwood) and Sitka spruce. Mr. Hervey renders the industry a valuable service by presenting facts heretofore unknown except in a general way.

He points out that the maximum growth of the Southern pines is attained in a shorter period than required by Western hemlock and Sitka spruce. Longleaf pine attains it maximum growth at fifty years, slash pine at twenty years, and loblolly pine at forty years. Western hemlock attains its maximum growth at seventy years, and the same is true of Sitka spruce.

But, Mr. Hervey finds that Western hemlock and spruce annually adds to its growth per acre more than twice as much wood as does the Southern pines.

His logical conclusion then is that in Southeast Georgia (the area he is comparing with the Pacific Northwest) 4.2 times more acreage of timber will be required to support a pulp mill of equal size, than in the hemlock spruce region of the Pacific Northwest.

Mr. Hervey employs certain data from the yet as unpublished "Yield of Even Aged Stands of Sitka Spruce and Western Hemlock," by Walter H. Meyer of the Pacific Northwest Forest Experiment Station, Portland, Oregon. These figures will be available for general use when the government printing office makes them available, but in the meanwhile some facts extracted from the report may throw added light upon the subject Mr. Hervey deals with.

In the first place, it may be said that the rate of growth of the spruce-hemlock type amazed even those who were familiar with the heavy stands and rapidity of growth. In this connection the following excerpt from the report, on the comparative rate of growth of the Douglas fir type with the spruce-hemlock type, is of interest.

Comparison With Yield of Douglas Fir Type*

"Since the range of the spruce-hemlock type in Oregon and Washington is included within that of the Douglas fir type, it is interesting to compare the two types as to yield obtained in fully stocked stands—especially since spruce and hemlock are highly tolerant species (will grow in shade) and Douglas fir is relatively intolerant (will not grow well in shade). A common site index for the spruce-hemlock type in Oregon and Washington is 150, which is only slightly lower than the Douglas fir site index for the same areas. In table 24 the spruce-hemlock yield for site index 150 is compared with the Douglas fir yields for site indices 150 and 160, respectively. In the

*Site index indicates the height of the dominant trees on the tract. Thus site index 150 of spruce-hemlock means the dominant trees, or the majority, are approximately 150 feet in height.

*Excerpt from "Yield of Even-Age Stands of Sitka Spruce and Western Hemlock," by W. H. Meyer, Pacific Northwest Forest Experiment Station, Portland, Oregon.

TABLE 5

SPRUCE, HEMLOCK—CUBIC-FOOT VOLUME PER ACRE, INCLUDING STUMP AND TIP BUT NOT BARK, OF TREES 2.6 INCHES AND MORE IN DIAMETER AT BREAST HEIGHT*

Volume (in cubic feet)[1] per acre, by site index.

Age (years)	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
20	-----	-----	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000	2,100	2,200	2,400	2,600
30	1,100	1,300	1,600	2,000	2,300	2,800	3,200	3,700	4,200	4,600	5,000	5,400	5,700	6,100	6,400
40	2,100	2,500	2,900	3,400	3,900	4,600	5,300	6,100	6,800	7,500	8,100	8,700	9,200	9,700	10,200
50	3,100	3,600	4,200	4,800	5,500	6,400	7,400	8,400	9,400	10,300	11,200	11,900	12,600	13,300	14,000
60	3,900	4,600	5,300	6,200	7,100	8,200	9,300	10,600	11,800	13,100	14,200	15,100	16,000	16,900	17,700
70	4,600	5,400	6,200	7,300	8,400	9,600	11,000	12,500	14,000	15,400	16,800	17,900	19,000	20,000	21,000
80	5,200	6,100	7,100	8,200	9,500	10,900	12,400	14,200	15,800	17,500	19,000	20,300	21,500	22,600	23,800
90	5,800	6,700	7,800	9,000	10,400	12,000	13,700	15,600	17,500	19,300	20,900	22,400	23,700	25,000	26,200
100	6,300	7,200	8,400	9,800	11,300	13,000	14,800	16,800	18,900	20,800	22,600	24,200	25,600	27,000	28,300
110	6,700	7,700	9,000	10,400	12,100	13,900	15,800	18,000	20,200	22,200	24,100	25,800	27,400	28,800	30,200
120	7,100	8,200	9,500	11,000	12,700	14,600	16,700	19,000	21,300	23,500	25,500	27,300	28,900	30,400	31,900
130	7,400	8,600	10,000	11,500	13,300	15,300	17,500	19,900	22,300	24,600	26,700	28,600	30,200	31,800	33,400
140	7,700	8,900	10,400	12,000	13,900	16,000	18,200	20,700	23,200	25,600	27,800	29,700	31,500	33,100	34,800
150	8,000	9,200	10,800	12,500	14,400	16,600	18,900	21,500	24,100	26,600	28,800	30,800	32,700	34,300	36,100
160	8,300	9,500	11,200	12,900	14,900	17,100	19,600	22,200	24,900	27,500	29,800	31,900	33,800	35,500	37,300
170	8,500	9,800	11,500	13,300	15,400	17,600	20,200	22,900	25,700	28,300	30,700	32,900	34,800	36,600	38,500
180	8,700	10,100	11,800	13,700	15,800	18,100	20,800	23,600	26,400	29,100	31,600	33,800	35,800	37,700	39,600
190	8,900	10,400	12,100	14,100	16,200	18,600	21,300	24,200	27,100	29,900	32,400	34,700	36,800	38,700	40,700
200	9,100	10,700	12,400	14,400	16,600	19,100	21,800	24,800	27,800	30,600	33,200	35,600	37,700	39,700	41,700

[1] Rounded off to nearest hundred.

TABLE 24

YIELD COMPARISON BETWEEN SPRUCE-HEMLOCK TYPE AND DOUGLAS FIR TYPE[1]

Age	Trees			Basal Area			Av. Breast-Height diam.			Cubic Foot Volume			Bd. Ft. Vol. Scribner Rule		
	Douglas Fir		Spruce Hemlock	Douglas Fir		Spruce Hemlock	Douglas Fir		Spruce Hemlock	Douglas Fir		Spruce Hemlock	Douglas Fir		Spruce Hemlock
	Site index 150	Site index 160	Site index 150	Site index 150	Site index 160	Site index 150	Site index 150	Site index 160	Site index 150	Site index 150	Site index 160	Site index 150	Site index 150	Site index 160	Site index 150
(years)	Number	Number	Number	Sq. Ft.	Sq. Ft.	Sq. Ft.	Inches	Inches	Inches	Cu. Ft.	Cu. Ft.	Cu. Ft.	Bd. Ft.	Bd. Ft.	Bd. Ft.
40	510	445	745	182	186	241	8.0	8.7	7.7	5,750	6,160	7,500	6,500	9,000	11,800
60	296	261	323	232	237	298	12.0	12.9	13.0	9,490	10,200	13,100	29,600	36,200	55,300
80	207	182	222	266	271	333	15.4	16.6	16.6	12,400	13,360	17,500	54,300	62,100	92,100
100	161	142	170	291	297	355	18.2	19.7	19.6	14,410	15,600	20,800	72,400	81,800	120,000
120	134	116	138	310	316	371	20.7	22.3	22.2	15,990	17,240	23,500	85,500	95,500	142,100
140	115	101	114	326	333	383	22.8	24.5	24.8	17,090	18,410	25,600	95,900	106,200	159,700
160	102	70	97	340	347	394	24.7	26.6	27.3	18,010	19,380	27,500	104,400	115,400	174,900

[1] Douglas fir values are drawn from U. S. Dept. Agr. Tech. Bull. 201(9).

first comparison the spruce-hemlock yield shows a superiority of 30 to 50 per cent in cubic-foot volume, the difference increasing with age, and approximately 66 to 70 per cent in board-foot volume at an age of 80 years or more. In the second comparison the spruce-hemlock yield shows a superiority of 22 to 42 per cent in cubic-foot volume and approximately 50 per cent in board-foot volume. The differences are due in part to the fact that somewhat less rigid standards of normality were applied in the Douglas fir study than in the spruce-hemlock study, and in part to the fact that Douglas fir does not attain its best development in the hemlock forests of the coast; but in the main they are due to species differences in yield capacity."

Accompanying Tables, 5, 24 and 32 are shown herewith, being taken from the growth studies previously referred to. From them may be drawn perhaps, more accurate estimates of the reproductive value of Pacific Northwest land per acre than is possible from Mr. Hervey's paper.

Table 24 is a yield comparison between the spruce-hemlock type and the Douglas fir type and shows quite clearly the greatly superior wood production per acre of spruce-hemlock in the 150 Site classification when compared to the Douglas fir type.

Table 32 gives the mean annual cubic-foot increment per acre of spruce-hemlock 2.6-inches and more in diameter at breast height. It will be noted that maximum annual increment in the 150 Site classification is at 70 years, this being 220 cubic feet per year. Theoretically, therefore, it might be said that the ideal cutting cycle for the spruce-hemlock type would be 70 years.

However, in considering the spruce-hemlock type it must be remembered that this is the figure for the entire region and that for rather large areas the maximum annual growth per acre may be larger, or the timber under the more favorable conditions may attain 150 feet in height in less than 70 years.

Table No. 5 is especially interesting because it gives further details of the cubic-foot volume per acre by Site index.

Difficulty of Logging Southern Pines at Maximum Growth

It is of practical value to point out the difficulty of logging the three Georgia pines at the year of their maximum growth as compared with the simplicity of logging West Coast hemlock and spruce when they have attained their maximum growth.

Mr. Hervey, in his paper, points out that Georgia Survey No. 1 will produce approximately 91 cubic feet of pulpwood annually under normal conditions provided each type is segregated on the ground and logged at its year of maximum mean annual increment. Mr. Hervey further states that in the Southeast Georgia unit, the longleaf pine reaches its peak growth in 50 years, slash pine at 20 years and loblolly at 40 years. Longleaf pine has a liking to grow in pure stands, but does not always do so. Loblolly and slash pine grow intermingled quite frequently. Furthermore, reading Mr. Hervey's paper one is inclined to think that he refers to most of the area being covered by a mixed stand of the three species.

In arriving at his estimate of ground productivity of 91 cubic feet per year, Mr. Hervey stipulated that the timber is to be cut at year of maximum growth. For longleaf this is 50 years, for slash 20 years, for loblolly 40 years. How may this be done? If the slash pine is logged at 20 years, what will happen to the loblolly and the longleaf? Can it be protected in whole, or in part?

To selectively log the slash pine, which is supposed to cover about 46 per cent of the area in Southeast Georgia, the logger will have to go over the ground in 20 years, protecting the young growth of the other two species.

The longleaf is supposed to cover 42 per cent of the area. This would be logged at 50 years of age. It will be rather tall at that age. How can it be logged without serious damage to the young growth of the other two species?

The loblolly, which constitutes 12 per cent of the stand, would be logged at 40 years, or the same time the second cutting of slash pine would be due. This would reduce to some extent the acreage to be covered to get a specific volume of wood, but would probably increase damage to growing timber not yet ready to cut.

What Mr. Hervey tries to do is work out an average yield basis on three species, each with a separate rotation, and all three species growing more or less intermingled.

No Such Problem on Coast

There is no such problem in logging the pulp wood of the Pacific Coast. The spruce-hemlock stands are as a rule rather even aged. The spruce grows faster than the hemlock, but in about the correct species mixture desired by the pulp mills. The spruce-hemlock Site 150 will produce 15,400 cubic feet of wood at 70 years, 13,100 at 60 years, 10,300 at 50 years and can be cut clean. This relation between the character of growth in the two regions is probably what Mr. Hervey had in mind in the last statement in the article when he said that 4.2 acres would be required in the Southeast Georgia district compared to 1 acre in the fog belt of the spruce-hemlock type to support a pulp or paper mill. Damage to young growth in logging may materially increase the amount of land in the South required to support a pulp mill.

Mr. Hervey concludes with a somewhat involved means of arriving at the rate of growth of pulp wood in Southeast Georgia and the Pacific Coast. An acre of ground is an acre of ground in the South and on the Pacific Coast. Mr. Hervey gives the weighted annual growth in cubic feet per acre in the Southeast Georgia area as 91.02 cubic feet per acre per year.

Upon the Pacific Coast even aged stands of the hemlock-spruce type are more frequently found around 90 years

TABLE 32

MEAN ANNUAL CUBIC-FOOT INCREMENT PER ACRE OF SPRUCE-HEMLOCK TYPE TREES 2.6 INCHES OR MORE IN DIAMETER AT BREAST HEIGHT*

Age (years)	Increment (in cubic feet) per acre, by site index														
	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
20	---	---	20	30	40	50	60	70	80	90	100	105	110	120	130
30	33	43	53	67	77	93	107	123	140	153	167	180	190	203	213
40	52	62	72	88	98	118	132	152	170	188	202	218	230	242	255
50	62	72	84	96	110	128	148	168	188	206	224	238	252	266	280
60	65	77	87	103	118	137	155	177	197	218	237	252	267	282	295
70	66	77	89	104	120	137	156	179	200	220	240	256	271	286	300
80	65	76	89	102	119	136	155	178	198	219	238	254	269	282	298
90	64	74	87	100	116	133	152	173	194	214	232	249	263	278	291
100	63	72	84	98	113	130	148	168	189	208	226	242	256	270	283
110	61	70	82	95	110	126	144	164	184	202	219	235	249	262	275
120	59	68	79	92	106	122	139	158	177	196	212	227	241	253	266
130	57	66	77	88	102	118	135	153	172	189	205	220	232	245	257
140	55	64	74	86	99	114	130	148	166	183	199	212	225	236	249
150	53	61	72	83	96	111	126	143	161	177	192	205	218	229	241
160	52	59	70	81	93	107	122	139	156	172	186	199	211	222	233
170	50	58	68	78	91	104	119	135	151	168	181	194	205	215	226
180	48	56	66	76	88	101	116	131	147	162	176	188	199	209	220
190	47	55	64	74	85	98	112	127	143	157	171	183	194	204	214
200	46	54	62	72	83	96	109	124	139	153	166	178	188	198	208

of age than any other age. Table 32 shows that the most rapid increment for Site 150 (which is the predominating site in this type forest) is at 70 years, or 220 cubic feet per acre per year.

On a theoretical forestry rotation basis upon the Pacific Coast it is probable that no firm would ever seek to have a longer rotation than 70 years. Site 150, therefore, which may be taken as the average Site classification of the spruce-hemlock region gives a truer picture of pulpwood reproductive capacity than the figures presented in Mr. Hervey's paper.

Thus to express the comparison in clear cut terms it appears that the growth per acre per year in the spruce-hemlock type upon the Pacific Coast under average conditions exceeds the growth of southern pine per acre per year over two times on a commercial rotation basis.

CANADIAN-AMERICAN AWAITING ENGLISH CAPITALISTS

Mr. Frank L. Buckley, chairman and managing director of the Canadian-American Pulp & Paper Mills, Limited, is back in New York from his trip abroad and is awaiting the arrival of English capitalists whom he is seeking to interest in the proposed pulp mill at Prince Rupert, B. C.

Upon their arrival the party will journey to Vancouver, B. C., and thence to Prince Rupert to inspect the site.

In a newspaper story and advertisement appearing in Seattle papers February 23rd, Mr. Buckley was listed as a director of a newly-organized life insurance company to be known as the George Washington Mutual Life Assurance Company with offices in Seattle.

THE THOMAS PROJECT

Dai Thomas, who has been negotiating with the Victoria, B. C., city council regarding proposed establishment of a rayon pulp mill on Vancouver Island, is now in London conferring with principals of the syndicate he represents.

Until his return there is small prospect of much being done in connection with the suggested acquisition of Victoria's outer docks as a site for the mill. The question of power is still undecided, but Thomas and his associates collected a good deal of data on various alternative sites and he is presenting this to the British investors.

Mr. Thomas claims that the syndicate he is working with is prepared to invest as much as $10,000,000 in a rayon plant on the Pacific Coast.

WESTMINSTER PAPER DOING WELL

Reciprocity between Canada and the United States did no good to Westminster Paper Mills, in fact made things worse; but in spite of that, the company is finding business definitely better, according to President J. J. Herb.

Westminster Paper Company operates at New Westminster one of the largest paper specialty manufacturing plants in Western Canada and for several years has been an important factor in the export and domestic markets.

"Export trade is not so important to us as it was a few years ago," said Mr. Herb. "Sales to Australia and New Zealand fell off a few years back and we have not yet fully recovered that business, and under the new trade agreement with the United States we are virtually banned from that market, while Canada has let down the bars to American paper specialties to some extent. But in Canada—and we sell right through the west, including prairie territory—business is definitely increasing."

Westminster Paper Company has installed a suction press on its paper machine, Dominion Engineering Company, Montreal, doing the job. A new napkin folding machine manufactured by Paper Converting Machinery Co., Green Bay, Wis., has also been installed.

VANCOUVER KRAFT REORGANIZATION

A hearing will be held in Salem, Oregon, on March 23rd before Judge C. H. Carey, Oregon state corporation commissioner, on an application by the Columbia River Paper Mills and the National Trust Company of Canada, for permission to reorganize the Vancouver Kraft Company, Limited, through the exchange of certain securities for first mortgage 6½ per cent gold bonds and issuance of deposit receipts for the deposit of these bonds.

The Columbia River Paper Mills is the holding company controlling the common stock of the Oregon Pulp & Paper Company and the Columbia River Paper Company.

From Vancouver, B. C., it was reported that another step in the prolonged negotiations over Vancouver Kraft Mills was to be taken late this month when the bondholders' committee was scheduled to meet and report as to the availability of funds for launching of an operating company.

Further extension of time will probably be necessary from the bondholders for the execution of the agreement reached last fall when various interests took steps to revive the project. It may be necessary to go before the Supreme Court again for an order validating the proceedings.

Affairs of Vancouver Kraft are still somewhat involved, but with the market showing signs of improvement the bondholders have been anxious to place the company in a position where they may be able to realize something on their investment.

National Trust Company sought liquidation two years ago, and this effort was blocked by bondholders. Mr. Leadbetter later came forward with a plan for raising additional necessary capital, approximately $400,000, with which to put the kraft mill in operation and establish a sawmill. Several meetings were held, resulting in the appointment of a committee to survey the possibilities of raising the funds. This committee was to report this month.

PULP IMPORTS TOPPED RECORD IN 1935

According to the United States Department of Commerce imports of wood pulp into this country during 1935 reached a new high in total tonnage, showing a fair increase over 1934 and a slight increase over 1933 imports.

Imports of wood pulp in 1935 amounted to 1,939,249 short tons of all grades, valued at $70,760,921.

PULP EXPORTS AT NEW HIGH

Exports of wood pulp from the United States in 1935 showed a gain over 1934 reaching a new high. The total value was $8,632,971.

Exports of sulphite pulp increased 20 percent over 1934 with 148,586 tons. Other pulp exports totaled 4,727 tons in 1935.

RAINIER MAKES FIRST EXPERIMENTAL RAYON

An historical event of great interest to the pulp industry occurred on the afternoon of February 26th in the new research and experimental laboratory of the Rainier Pulp & Paper Company at Shelton, Washington, when the first rayon was spun, said to be the first ever produced west of Cleveland, Ohio.

The rayon spinning is not to be on a commercial basis, but is for the purpose of enabling the Rainier organization to test its pulp produced for Eastern rayon spinning mills prior to shipment, and to permit steady experimentation to further improve the quality of pulp for rayon and cellophane.

Although not quite completed the new and impressive laboratory was sufficiently ready February 26th to prepare the viscose solution and put it through the standard spinning machine under the direction of Dr. Russell M. Pickens, director of research; Dr. Paul Schlosser, Dr. R. E. Brown and others of the research staff.

A description of the new laboratory accompanied by photographs will appear in the April number of this journal.

HAWLEY REPORTS LOSS FOR 1935

The Hawley Pulp & Paper Company of Oregon City, Oregon, reported that operations for 1935 resulted in a loss of $227,769 as compared with a loss of $233,068 in 1934.

However, the company's deficit was increased but $43,264, from $800,372 to $843,636 in 1935. The 1935 loss of $227,769 was reduced by the purchase and cancellation of bonds under the reorganization arrangement. From the Hawley statement it is apparent that during 1935 $293,000 of the first mortgage sinking fund bonds were retired, as bonds outstanding dropped from $1,987,500 to $1,694,500. The reorganization indenture requires that a minimum of $200,000 of the bonds be retired annually in addition to retirements offsetting sales of capital assets.

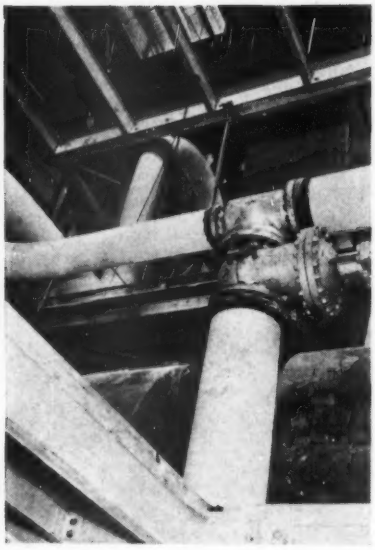
The total obligation of the Hawley company on bonds and its note of $535,000 plus interest on each and federal income tax was reduced to $2,501,330 from $2,738,350.

In 1934 the operating deficit was $130,029 but in 1935 it was $43,264.

The ratio of current assets to current liabilities improved in 1935. Current assets in 1935 were $919,867 as compared with $876,123 in 1934. Current liabilities in 1935 were $195,726 compared with $193,649 in 1934.

In his report President Watson Eastman stated that if the $1 per ton increase in the price of newsprint stands for the entire year the company's income will be stepped up approximately $35,000, but increased costs would probably offset this. As long as the newsprint situation, Hawley's principal production, remains unfavorable to American mills, President Eastman commented, "I cannot be hopeful the company will show any great improvement this year."

The net surplus at the end of 1935 was $571,857.

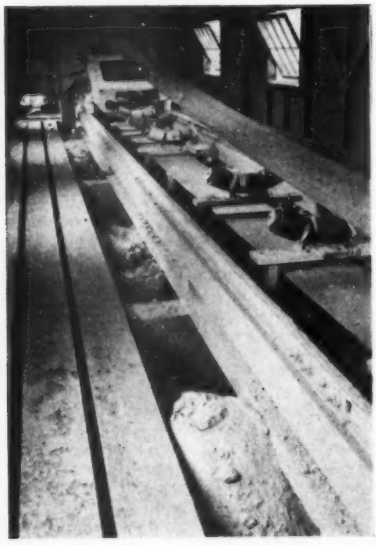


CANADIAN RAYON YARN MILLS TO BE INVESTIGATED

Because some Canadian rayon yarn mills were shut down a few weeks ago ostensibly because of the threat of ruinous competition resulting from the new Canadian trade agreement with Japan, the rayon industry in the Dominion is to have the spotlight turned on its operation, full blast.

The new Canadian government was obviously indignant over the industry's "act of terrorism and intimidation" in temporarily closing its mills, and it intends to make an example of the industry if it can be proved that the mills were shut down without genuine cause.

Apparently the government, which promptly appointed a royal commission of inquiry, will not be satisfied with merely surveying the effect of Japanese competition. It is proposed to examine the capital structure of rayon mills, dividends, salaries, bonuses, working conditions, wages, and so forth.



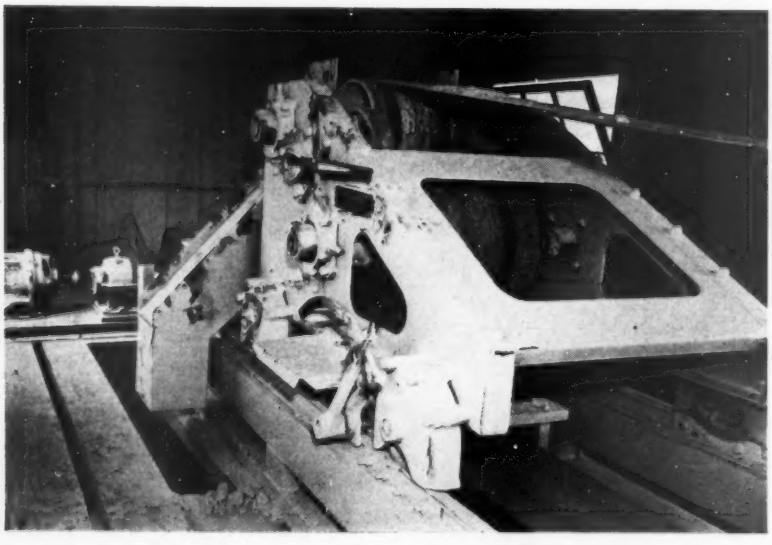
FINISHING TOUCHES BEING APPLIED TO NEW WEYERHAEUSER MILL

The three photographs on this page, taken March 7th, show some of the completed parts of the new Weyerhaeuser 150-ton per day unbleached sulphite pulp mill soon to begin production at Everett, Washington.

At the upper left is a view of the completed piping in the power plant. In the center is the sulphur storage building showing the sulphur already in and ready for conversion into cooking acid.

The Link-Belt sulphur conveyor brings the sulphur directly from the ship into the storage building and discharges it evenly through the self-propelling Link-Belt tripper shown in the bottom photograph.

The work of finishing up is being carried on rapidly under the direction of Mr. O. C. Schoenwerk, pulp and paper mill engineer, who designed the mill and has supervised all construction.



MEEHAN PROGRESS SLOW

Negotiations between representatives of J. P. Meehan & Company, timber engineers, and the Vancouver City Council with a view to acquiring waterpower rights on Cheakamus Canyon for establishment of a pulp mill have been making slow progress so far this year. Several conferences have been held between the Meehans and members of the council, but without definite headway being made.

A part of the Meehan undertaking, in the event of taking over Cheakamus, was to provide power to the city in sufficient quality to permit the municipal authorities to run their own power system in competition with the B. C. Electric Railway, which now enjoys a monopoly of power, light, gas and traction facilities in the lower mainland of British Columbia.

However, proponents of municipal ownership of public utilities have received only lukewarm support in the council. Ald. Halford Wilson, who has been doing most of the negotiating with the Meehans, recently tried to commit the council to endorsing the principle of municipal ownership, but his resolution was rejected. He was merely authorized to continue his negotiations.

WESTERN PAPER CONVERTING INCREASES SURPLUS

The Western Paper Converting Company of Salem, Oregon, which uses a large amount of paper manufactured by the Oregon Pulp & Paper Company of the same city, increased its surplus in 1935 by $6,395 according to the annual report recently issued.

This addition to surplus was made after deduction of $16,743 for fixed charges and the payment of interest on the $55,000 of bonds outstanding.

The company's balance sheet at the close of business December 31st, 1935, showed that 1935 sales had totalled slightly more than $500,000. Property was valued at $342,843 subject to depreciation reserves of $168,195. Quick assets were listed as $118,415 as against quick liabilities of $95,810.

Western Paper Converting has $55,000 in bonds upon which 5 per cent interest is paid. Preferred stock outstanding has a par value of $30,700. The common stock of the company has a listed book value of $119,400.

Officers elected at the annual meeting the middle of February were: William S. Walton, president; A. B. Galloway, vice-president; H. B. Tronson, secretary; Thomas A. Roberts, treasurer; directors, C. E. Wagner, Homer H. Smith, W. E. Keyes, C. C. Bryant and Nils Teren.

The 1935 payroll, apart from the salaries of salesmen and executives, totaled $68,888.

LABOR OFFICIAL TO RESIDE ON COAST

E. B. Lambton, an official of the International Brotherhood of Paper Makers, has been sent to the Pacific Coast to look after the interests of that organization. He will probably make his headquarters in Portland, Ore. Mr. Lambton came by motor, first visiting the organizations in Los Angeles.

KILLIN RESIGNS—RILEY PROMOTED

Mr. A. P. Killin, assistant superintendent of the Powell River Company at Powell River, B. C., resigned March 1st and was succeeded by Mr. Fred Riley

B. C. PULP INCREASES AMERICAN SALES

"We are selling more pulp in the American market than ever before, and that is due primarily to the reciprocity agreement between the United States and Canada," reported Oscar Jorgenson, assistant manager of B. C. Pulp & Paper Company, surveying the market situation.

For the first time in years the company is selling as much in the United States as in the deep-sea export field. The Far East, especially Japan, has always been one of the largest sales territories for B. C. Pulp. The Japanese embargo on Canadian pulp which was effective for the second half of last year badly disrupted sales, but the company is now beginning to win back the business lost. A steady improvement in trans-Pacific trade is reported. A better feeling in the pulp industry first noted last month is coninuing, says Mr. Jorgenson.

Meanwhile B. C. Pulp is pushing ahead installation of the Chemipulp system at both its plants at Port Alice and Woodfibre. They will be in operation some time in April.

CROWN-WILLAMETTE NINE MONTHS PROFIT UP

The statement of the Crown-Willamette Paper Company and subsidiaries including Pacific Mills, Limited, for nine months ending January 31st, 1936, show a distinct improvement in earnings.

Profit before depreciation, depletion, bond interest and income taxes was $4,545,150 for the 1936 period as compared with $4,237,044 in the same period ending January 31st, 1935.

Depreciation of $1,731,239 for the nine months period ending January 31st, 1936, was $8,470 less than in the same period a year ago. Depletion of $373,493 was $20,095 more than in the 1935 period. Bond interest of $732,991 was $75,563 less than in the comparable 1935 period.

Income taxes increased in the nine months period ending January 31st, 1936, by $83,070, being $292,094 as compared with $209,024 in the same period ending January 31st, 1935.

The net profit accruing to Crown-Willamette Paper Company stockholders for the nine months ending January 31st, 1936, after deducting the minority stockholders proportion of Pacific Mills profit of $25,706, was $1,389,627 as compared with $1,104,829 in the nine months period ending January 31st, 1935, or an increase of $284,798.

NEW OFFER FOR PRICE BROTHERS

Twenty million dollars has been offered for Price Brothers & Company, big eastern Canadian newsprint and power company, by Pacona, Ltd., on behalf of Lehman Brothers, New York bankers, and Aluminum, Ltd., the latter controlling Saguenay Power Company and Saguenay Electric Company, both creditors of Price Brothers.

In the past, all offers to take over Price Brothers have been based on a reorganization plan. The present offer is a straight purchase with no undertaking to reorganize, and for that reason it may avoid the opposition, felt in the past, of preferred stockholders.

Lords Beaverbrook and Rothermere, the English publishers, were interested in previous offers made for Price Brothers by Aluminum, Ltd., but are not participants in the present deal.

CAMPAIGN BEGUN TO PROMOTE USE OF PAPER SHIPPING SACKS

The American Paper & Pulp Association in cooperation with one of its divisions, the Paper Shipping Sack Manufacturers Association has issued a folder urging pulp and paper mills to request that all materials which can be shipped in paper sacks be so specified when ordered.

To facilitate the movement small red stickers have been provided for placing on requisitions. These read, "Please Ship This Material to Us in Paper Sacks." The approval of the American Paper & Pulp Association is printed on each label.

A partial list of materials used by the industry and which are acceptable to the railroads for shipment in paper sacks, follows: Alum, borax, casein, clay, dextrin, dry rosin size, gypsum, hydrated lime, limestone, lithophone, pigments, plaster of paris, quicklime, salt, soap powders, soda ash, starch, talc, tapioca flour, titanium dioxide and whiting.

The Paper Shipping Sack Manufacturers Association will gladly advise any mill of railroad requirements concerning any commodity which can be shipped in paper sacks.

CROWN-ZELLERBACH NINE MONTHS NET RISES

Crown-Zellerbach Corp. and subsidiaries (other than Crown-Willamette Paper Co. and its subsidiaries), report for the nine months ending January 31, 1936, consolidated net profit of $1,654,403 after depreciation, depletion, interest and income taxes, equal to $6.60 a share on 250,601 combined shares of $6 class A and B preference stock, on which there is an accumulation of unpaid dividends. This compares with a net profit (on the same basis) of $892,842 in the corresponding nine months' period of last year, equal to $3.56 a share on the same number of preference shares outstanding.

Earnings of Crown-Willamette Paper Co. and its subsidiaries are not consolidated with Crown-Zellerbach inasmuch as no part of the earnings of the former can be paid out in dividends to Crown-Zellerbach Corp. until all accumulated dividends in arrears on Crown-Willamette's preferred stock are paid.

Earnings of Crown-Zellerbach, which now do not include any income from Crown-Willamette and its subsidiaries, are drawn from National Paper Products Co. and Washington Pulp & Paper Corp., both wholly owned pulp and paper manufacturing concerns, from Zellerbach Paper Co., a wholly owned merchandising company, and from Fibreboard Products, Inc., which is 50 per cent controlled. Crown-Zellerbach owns 50 per cent of the voting stock, approximately 40 per cent of the preferred stock, and approximately 44 per cent of the class A stock of Fibreboard.

This ownership of Crown-Zellerbach in Fibreboard is of considerable importance from an earnings standpoint. Paraffine Companies, Inc., is the other owner of Fibreboard.

THREE CROWN MEN EAST

A. Bankus, of the Crown-Zellerbach Paper Company, San Francisco, Cal.; J. C. Hanny, mill manager, and W. R. Barber, technical supervisor, of the Crown-Willamette Paper Co., Camas, Wash., made a trip east to attend the annual meeting of the American Pulp & Paper Association in New York City. Before returning they visited some of the eastern mills.

GREAT LAKES SALE UPSET BY COURT

The newsprint industry in Eastern Canada is fluttery again as a result of the disallowance of sale of Great Lakes Paper Company's assets and the possibility that further delays may bring the threat of $39 paper. On the Pacific coast not so much alarm is felt because the chief operating companies are pretty well protected by contract, although there is no denying that a return to $39 paper in the east would inevitably affect the coast price schedule.

Great Lakes Paper Company has made contracts with United States publishers calling for an automatic reduction in the price of newsprint to $39 if the deal for sale of assets is not completed by April 1, and the slow progress being made in the Ontario courts makes it appear as though the company may be called on to cut its price—if the publishers insist on their pound of flesh.

Meanwhile there has been a revival of governmental activity in Ontario and Quebec with a view to controlling pulp and paper operations, ostensibly to prevent prices going to ruinous levels again. Peter Heenan, Ontario minister of lands and forests, has held a series of conferences with Premier L. A.Taschereau of Quebec with a view of making the Ontario laws conform with Quebec's.

Although neither of the provinces could arbitrarily fix a price at which newsprint could be sold, they could indirectly control operating costs of the various mills by alteration of stumpage duties and fees. It will be recalled that Quebec raised stumpage charges to virtually prohibitive levels for St. Lawrence Paper Mills when that firm upset the newsprint market in 1934. The Quebec and Ontario government are inclined to regard the $39 a ton contract entered into by Great Lakes with Chicago and other newspapers as essentially the same as the St. Lawrence deal two years ago, and the fact that the Great Lakes contracts are for ten years' duration they foresee a general unsettling of the whole newsprint price structure for a decade.

Representatives of the twenty-four publishers backing the Aldrich-Gefaell plan for sale of Great Lakes assets have unanimously agreed to stand together until obstacles to consummation of the plan have been dealt with. It is reported that the publishers have threatened to withdraw all newsprint orders from Ontario if that province should retaliate against Great Lakes.

HASSLER FORMS NEW COMPANY

J. E. Hassler, who has represented the Simonds Worden White Company, Dayton, Ohio, for many years on the Pacific Coast, has incorporated the Coast Manufacturing & Sales Company, which firm, effective March 1, was appointed sales distributors of Simonds-Worden-White products in the Pacific Northwest.

John E. Hassler is president of the Coast Manufacturing & Sales Co. The new firm is an outgrowth of the belief of Mr. Hassler, and those associated with him, that a Pacific Coast company can handle certain elements of service to the trade more efficiently than where functioning as a branch office.

The Coast Manufacturing & Sales Company, is building a modern concrete plant at 15th and Quimby streets, Portland, which will soon be ready to house the office and stock carried by the company.

81 ATTEND PORT ANGELES TAPPI DINNER

The first TAPPI meeting held in Port Angeles, Tuesday evening, March 3rd, under the chairmanship of Mr. Robert E. Bundy, manager of the Fibreboard Products Company mill, was an outstanding success, with eighty-one in attendance.

Many were attending their first meeting and were a bit bashful about entering into the discussion following each of the two speakers, but Chairman Bundy soon broke down the reserve and the discussions waxed warm.

A resolution, introduced by Mr. W. A. Kelly of Portland, expressing the regret of the Technical Association at the sudden death of Mr. James G. Ramsey on February 13th, and extending the sympathy of the members to Mrs. Ramsey and the family, was passed unanimously.

It was again apparent that the dinner meetings were achieving their purpose of bringing a larger number of younger mill men to the TAPPI meetings to benefit from the papers and the discussions.

Mr. Ray Smythe of Portland gave a paper on "Screen Design and Stock Screening." Mr. Roger E. Chase of Tacoma spoke on "Metal and Alloys in the Pulp and Paper Industry."

RAY SMYTHE DISCUSSES FLAT SCREENS

Mr. Ray Smythe of Portland, Oregon, spoke on "Screen Design and Stock Screening."

Mr. Smythe said, "The manufacturer and designer of flat screens has a number of problems which must be correctly solved, or at least thoroughly discussed with the ultimate user, if he hopes to produce a screen which will give satisfactory service at a minimum of maintenance cost.

"The practice in some mills is to call together the various interested parties, and in conference with the prospective manufacturer discuss all of the problems of their screening system and go into minute detail concerning the construction of the screens offered for consideration. If the executives, the engineers, superintendents and master mechanic of the mill will sit down and go over the many items of design, they will be reasonably sure that after the equipment is put into service that they can make it work.

Too many times flat screens are purchased and put into service without a clear understanding of the problems involved in their use. Consequently, well-designed screens, adequate for the job, have been condemned because they did not function as the actual operators thought that they might. There has also been a lamentable disposition to buy flat screens on price, and not on design. It seems that some operators apparently think that a flat screen is a flat screen, regardless of who makes it and the materials used in its construction. This is far from the true situation. If the manufacturers were encouraged to produce better equipment of this type and the operators were also willing to pay a reasonable price for a design which would materially reduce their maintenance costs and increase their production per unit, there would be an incentive to change designs to suit.

Much of the improvement in flat screen design and construction has originated in the West. This is not unusual, because we have had so many new mills built here during the last several years and the latest in equipment was demanded.

The designer and manufacturer of flat screens has a number of variables to contend with, each peculiar to the mill in question, and each of of these things will affect the ultimate operation of the screen. Briefly, they are: The cut of the plates, the r.p.m. of the cam or eccentric shaft, the pulsations of the diaphragm per minute, the throw of the cam or eccentricity actuating the cam, the consistency of the stock, the characterisics of the stock, the material to be used in he cams, or eccentrics particularly if a roller cam design; the type of bearings whether babbitted or so-called anti-friction; the type of frame construction whether wooden, cast iron, structural, or other material; the type of fastener, he construction of the vat, whether of wood, iron, bronze or stainless steel; the distance between the diaphragm and the plates; the proper location for the dams for adjusting stock outlets, and, the ease with which maintenance, operations may be carried on. It will be seen from these many variables that the designer has serious problems to consider and to overcome.

As an instance, he can not expect to design a screen which will run at 740 pulsations per minute and at the same time have a movement of the diaphragm. Such an extreme condition of speed and lift would wreck any screen in a short length of time. So, it is quite necessary that the prospective user fully discuss all of these problems with the manufacturer and then determine if he is approaching the problem in a satisfactory manner.

In checking on a number of mills in the Pacific Northwest district, it was very interesting to find what the scope of variation was, in these items enumerated above. Briefly, they are as follows: The cut of plates varies from .006 to .026. The r.p.m. of the drive shaft runs from 116 to 185. The pulsations of the diaphragm, 375 to 740. The distance between plates and diaphragm, 3⅛ to 13 inches. The eccentricity or throw of the diaphragm-operating mechanism from $\frac{1}{16}$ to ⅜ in. In cam design we have 3-point and 4-point cams, both split and solid, and also with variations such as the quick upward and slow downward pattern. Consistency of the stock of course varies in all operations, but it usually comes on at about .025 to .035 per cent and goes off at about .18 to .20 per cent.

RAY SMYTHE
Spoke on Flat Screen Design

ROBERT E. BUNDY
Arranged the Port Angeles TAPPI Meeting

The operation of flat screens on paper machines is very much different from that of flat screens used strictly in the screening of pulp.

The chairman has very courteously asked me to give some brief description of the new eccentric type of screen which I have designed, and I am merely calling your attention to some of the points of design which I think have merit and will materially reduce maintenance cost on a screen of this type.

The Multivat idea is not entirely new, as it has been successfully used in another form in one of the Western mills for several years. In the vat of my screen all parts are made of bronze and the stationary plate-holding bars are cast as an integral part of the screen vat, so that there are not any bolts or screws necessary to hold this bar in place, thereby eliminating for all time the question of loose plates, broken bolts, the entrance of dirt into the stock, and the general disintegration of the vat, due to the former condition which existed in most vat designs.

The fasteners are of a new design, which permits them to be quickly installed within a minute or two, or to be removed in the same length of time. There is no place where pulp, and likewise dirt, may accumulate behind the fasteners. There are but two moving parts in the fastener, and should either of these break from some unusual cause, they may be readily replaced at the mill for a very few cents. The side sealing straps fit tightly and firmly both at top and bottom and are arranged in such fashion that any two plates may be removed for

inspection or replacement without disturbing the remaining plates.

The outlets from the vat are likewise of cast bronze, an integral part of the vat, and the entire assembly is thoroughly machined at each joint so that we have a tight-fitting leak-proof job, constructed in such a manner that vibration is reduced to a minimum.

The actuating part connected with the diaphragm is a very simple design, being merely a line shaft carried on Jones self-oiling bearings and connected with an eccentric to the diaphragm. Each diaphragm is actuated by a separate eccentric. The design of these eccentrics is likewise thoroughly worked out in such fashion that they run very quietly and are prevented from assuming any lateral motion, forcing the diaphragm upward over the entire chamber containing the pulp, thereby giving a maximum impulse to every square inch of this area. The construction is so arranged that the oiling and care of these screens can be done with a minimum amount of effort and expense.

This type of screen has been in operation for several months and has proven entirely satisfactory. Those engineers and operators who have seen it have been very outspoken in their praise of the design and rather amazed at the sturdy character of the equipment and particularly impressed with the quietness of the moving parts and the absence of destructive vibration. The oiling system on the eccentrics has been arranged in such manner that there will always be oil between the moving parts and consequently we expect little if any wear over a long period of time.

It has been my pleasure tobuild a great number of screens, but of all equipment in paper mills, screens seem to be neglected more than any other. I believe that if operators will give more thought to the operation of their screens and to the selection of new ones which they may install that they can eliminate a great deal of expensive maintenance work and be able to operate their screen rooms at less cost per ton. There is no excuse for a screen room's being any more disorderly and dirty than a machine room.

We are in production on a number of these screens at the present time, and should any members desire more information concerning this design I would be only too happy to explain it more in detail."

COMING TAPPI MEETINGS

TAPPI dinner meetings, to which everyone in the industry is invited will be held:

MARCH 24th. At the Multnomah Hotel, Portland, Oregon, 6:15 p. m. Two speakers will be on the program, Dr. J. Elton Lodewick of the Pacific Northwest Forest Experiment Station will talk on "The Relation of the Work of the Pacific Northwest Forest Experiment Station to the Pulp and Paper Industry on the Pacific Coast." Mr. Clark Lewis of the Weyerhaeuser Timber Company, Longview, will talk on "Log Break Down for the Pulp Mill." Each talk will be followed by open discussion, Mr. H. A. Des Marais of the Terminal Sales Building, Portland, is in charge of arrangements.

APRIL 7th. At the Hotel Olympian, Olympia, Washington, 6:15 p. m. Three speakers will be on the program which will be devoted to a symposium of bleaching. The speakers will be Mr. A. H. Hooker, Jr., Mr. Brian Shera and Dr. W. Hirschkind. Open discussion will follow each talk. Mr. Fred Shaneman of the Pennsylvania Salt Mfg. Co., of Washington, Tacoma, is in charge of arrangements.

ROGER E. CHASE
Spoke on Corrosion Resistant Alloys

METALS AND ALLOYS IN THE PULP AND PAPER INDUSTRY

Mr. R. E. Chase of R. E. Chase & Company of Tacoma, spoke on "Metal and Alloys in the Pulp and Paper Industry." Mr. Chase said:

"Now about this business of metals and alloys in the pulp and paper industry. I am going to confine it to corrosion resistant metals and alloys. I don't know anything about structural metals and if I try to stretch it out to cover heat resisting alloys, it will take too long. I can't understand why anybody wants to hear about corrosion anyway, or why anybody would ever go into such a business in the first place. It can only lead to a life of pain and sorrow. Corrosion is only a strong word for grief, and the salesman gets it in the neck. His stuff costs a lot of money and is never good enough.

"Why is this? Why, because it has to be that way. The pulp maker wants strong chemicals to tear the fibres of the chips apart in nothing flat, and other strong chemicals to bleach these fibres pure white. The stronger these chemicals, the better he likes them. But no matter how strong and destructive these chemicals are, he wants equipment to handle them which must be dirt cheap and everlasting. If you fix him up with some corrosion resistant equipment today good enough for the chemicals he is using today, you are only challenging him to concoct still more powerful chemicals which will be just a wee bit too much for your equipment. And does he holler! It's the same thing in the automobile business. No matter how strong and safe and foolproof you make the automobile, or how wide or straight you make the road, you only challenge the drivers to drive faster and take bigger chances and have more wrecks than ever.

"Don't ask me for the last word in corrosion resistance. There never will be or never can be a last word. Furthermore, there are only 979 corrosion resistant alloys, and their manufacturers are constantly improving these and developing new ones. No one man can know it all—and live. He can only know what he sees around him. Don't ask a poor little worm who has lived all his life in the same apple to give you a summary of the fruit industry.

"In the old days of the sulphite process, they pumped cold acid into the digester and then turned on the steam. Copper wasn't quite good enough so they invented stainless steel. As soon as this was done, these diabolical chemists and pulp superintendents began to scheme how to use stronger acid, hotter acid and higher pressure. You see what I mean. If the operators would keep good records of their installations; when they went into service, what the service was like and how long they lasted, it would help a lot. If they would only take us into their confidence and tell us what they intended to do with the machinery we sell them.

"Corrosion resistant alloys for the pulp and paper industry may be roughly divided into about six different classes. First: alloys for handling sulphite cooking acid. Second: sulphite waste liquors. Third: kraft and soda liquors. Fourth: bleaching solutions. Fifth: alum solutions. Sixth: boiler compounds.

"For sulphite cooking acid, we have the 18-8 chrome nickel series, with or without molybdenum, and the 29-9 series such a Misco "C." These are the most widely used alloys in the Pacific Northwest. There are other alloys such as Avesta, etc., with which the speaker is not sufficiently familiar to discuss intelligently. If the 18-8 alloy is selected solely for considerations of safety and permanence, the molybdenum addition is called for. The carbon content should be down to around 1/10 of 1 per cent or lower in order to eliminate, so far as possible, all chances for carbide precipitation. This alloy is commonly known as KA2SMo or 18-8 SO. Eighteen refers to the percentage of chromium, 8, the percentage of nickel, S means low per cent of carbon and Mo refers to the molybdenum. Unfortunately, molybdenum is expensive, adding, for example, about 27c per pound to the base price of alloy tubing.

"If the acid is not too strong and not too hot, and if the system is reasonably free from electrolytic tendencies due to the presence of copper or bronze, and if the acid is not overly given to scale formation, the cheap KA2S alloy appears to be justified from an economical standpoint. But its use causes the unfortunate salesman to live in a state of constant uneasiness and suffering. He can never tell when some customer is going to subject this low priced alloy to harder service than he intended it for.

"We have the same thing in kraft and soda process evaporators. For example, the Zaremba horizontal type evaporator is designed so that the tubes can be quickly changed with ordinary labor and without special tools. The tubes are held in place by simple rings and clamps. In the high temperature or finishing effect of these Zaremba evaporators, ordinary steel tubes will last about six or eight months. When they begin to leak, wooden plugs are stuck in their ends. Finally a Sunday is set aside and the crew jerks out the whole bank of tubes and puts in a new set. All of our customers pick on us because of the short life of these tubes. When the pressure gets strong enough, we tell them to go ahead and put in alloy tubes, but when they find that the cost is goingto be about ten times as much as steel tubes, they subside. They find that it is more economical to buy the cheap tubes and let them wear out rather than to buy expensive alloys of longer life. This condition, by the way, does not exist in other types of evaporators where changing of the tubes is a laborious, skilled and costly operataion. There is nothing for the owner to do then but use the best tubes he can buy.

"What I am trying to point out is, that the owner of process equipment must strike a balance between price and quality. High priced, long lived equipment has to be balanced against frequently renewed cheap equipment with its attendant installation and maintenance cost.

"Under favorable acid temperature and pressure conditions, there are still, in my opinion, a number of places where KA2S alloy can be profitably used around sulphite mills. For example, in blow-pits and in cold acid piping. For more expensive equipment suchas heaters, coolers, condensers, pumps, valves and for strong hot acid systems, etc., it would be uneconomical and unsafe to use an 18-8 series alloy without molybdenum.

"Another popular alloy for sulphite acid is 29-9 chrome nickel, generally known as Misco "C." This alloy does not need any molybdenum. It has such a high percentage of chromium in proportion to its carbon content that there is no danger of carbide precipitation impairing corrosion resistance. This fact, I believe is now becoming generally recognized in the pulp and paper industry. The Standards Committee of TAPPI intend to rewrite the chrome nickel tentative standards which, through an oversight, were originally worded in such a way as to convey the idea that molybdenum was desirable for all chrome nickel alloys even of the highest chromium content. There are about 500 tons of Misco "C" in use in the sulphite industry and its performance has been uniformly successful. A great many of the eastern Chemipulp and hot acid systems are Misco "C" throughout.

"There is another alloy known as Durimet, which is nickel chrome instead of chrome nickel. That is, it contains about 22 per cent nickel, 20 per cent chromium, 3 per cent silicon, 6/10 of 1 per cent manganese, a percent or so of molybdenum and various other ingredients. As far as we have been able to determine, this alloy is just as good as KA2SMo or 29-9 under ordinary sulphite conditions, and it is very superior for those special cases where oxidizing conditions exist. In the presence of excess oxygen, sulphurous acid tends to oxidize to sulphuric, which is pretty severe on ordinary chrome nickel but has very little effect on Durimet.

"The manufacture of corrosion resisting alloys is not only a science but, very decidedly, an art. It is this factor of art by which I mean skilled workmanship, which explains why each alloy manufacturer has his own pet alloys. This means that he has learned various little tricks or knacks, not shown in the books, for improving the quality of his own product. These more or less secret manufacturing methods enable each manufacturer to make a superior article, although using quite different processes and formulae. Our friends in Portland must have developed such skill because their products are highly regarded everywhere. The Duriron Company in turn have developed their own technique in their alloy casting department. They make KA2SMo and Durimet in induction type furnaces which, of course, have no carbon electrodes and consequently, they have no difficulty in keeping the carbon content down where it belongs.

"The Michigan Steel Casting Company, makers of Misco "C" as well as the 18-8 series, specialize in the production of centrifugal castings. By pouring the molten metal into a mold spinning at high speed, the centrifugal force makes a very dense casting and traces of gas or slag are forced out of the metal. The action of gravity pulling against centrifugal force as the metal cools in the revolving mold, produces a texture or grain structure which is very tough and strong.

"In addition to Misco Centricast pipe with comparatively heavy wall construction, there is also available to the sulphite industry, a very satisfactory welded alloy tube of thin walls made by Carpenter Steel Company. This Carpenter tube is available as KA2S (Carpenter No. 4) or KA2SMo. This is a strictly first class product. Carpenter tubing runs from ¼ inch o.d. 23 gauge to 4 inches o.d. 12 gauge. Misco Centricast pipe runs from 2 inches with ¼ inch wall to 10 inches with ⅜ inch wall. Carpenter tubing is generally sold in 20-foot lengths, although special lengths are also available. Centricast pipe is available in any lengths which can be shipped on the railroad, long lengths assembled by electric resistance welding. That is, the two sections of pipe to be joined are held in position while an electric current passes through. The electrical resistance of the alloy raises the temperature of the joint to the fusion point.

"All kinds of alloy fittings, screwed, flanged, compression, welding and riveted, etc., are now available for joining alloy pipe and tube. Many of our customers have learned to make their own welded-on flanges which they claim are economical and acid-resisting.

"Under the subject of sulphite waste liquor, about all that needs be said is that all the alloys that are used for sulphite cooking acid are used for sulphite waste liquor. But in some cases, oxidizing conditions rule out KA2S and favor Durimet, KA2SMo or Misco "C."

"In the case of kraft and soda liquors, if some special alloys other than iron, as in the case of Zaremba evaporators, for example, are required, various materials have found favor. We have had very good luck with evaporator tubes made of 20 per cent chromium with no nickel or copper. For castings such as in valves and pumps, if cast iron is not considered good enough, recourse can be had to Ni-Resist, which is an iron alloy containing 14 per cent nickel, 6 per cent copper and 2 per cent chromium, or to Monel which contains 62 per cent nickel and 29 per cent copper.

"When it comes to handling moist chlorine gas or chlorine water, we would rather some expert would step to the front and tell us which alloy, if any, can be depended upon for 100 per cent satisfaction. Chlorine is a tough baby. That's why they use it. However, I have several customers who are satisfied with Duriron injectors for introducing chlorine into bleaching solutions and we know that Duriron is a success for handling bleach liquor. Duriron is a special cast iron containing 14¼ per cent silicon. It is so hard that it cannot be touched with a file. Duriron sleeves around pump shafts will permit a hard packing to be drawn up so tight as to do away with the sad leaking mess frequently seen around bleach pumps. We also have customers who are pleased with chrome nickel pipe for conveying chlorine into solution.

"For solutions of alum or aluminum sulphate, there is nothing better than Duriron, whether for dissolving jets, pipe fittings, pumps or shower pipes. The corrosiveness of alum is due to the strong sulphuric acid radical being combined with the weakly basic aluminum radical so that the solution is for all intents and purposes, a dilute sulphuric acid, and Duriron will go on handling such a solution forever without any appreciable loss. If one wants a tougher alloy which will stand more bouncing around than Duriron can take, Durimet can be used; or Alcumite. Alcumite is an aluminum copper bronze which is tougher than Duriron but not quite as acid proof. We have customers who are well pleased with Alcumite-bodied Saunders valves for handling alum solutions.

"For pumps handling boiler treatment chemicals, particularly under high temperature and pressure conditions, the selection of proper materials requires considerable care. There is hardly time to go into a complete discussion of all chemical combinations used in boiler treatment and it is probably enough to say that satisfactory service can ordinarily be obtained from the chrome nickel alloys including Durimet and such special alloys as Hastelloy "C," which contains 58 per cent nickel, 17 per cent molybdenum, 14 per cent chromium, 5 per cent tungsten, etc.

THE JOINT TAPPI- SUPERINTENDENTS MEETING

The joint Spring meeting of the Pacific Coast Division of the American Pulp & Paper Mill Superintendent's Association and the Pacific Section of the Technical Association of the Pulp & Paper Industry, will be held—

JUNE 5th and 6th at the Hotel Monticello in Longview, Washington... Mr. H. Robert Heuer of the Pulp Division, Weyerhaeuser Timber Company, is in charge of arrangements.

The meeting is open to everyone interested in the pulp and paper industry.

"For those questions to which I cannot find the answers, I hope others that are present will be kind enough to come to my rescue."

The following attended the Port Angels dinner meeting.

C. D. Altick, Jr., Port Angeles; J. L. Angove, Shelton; Ray Austin, Port Angeles; E. J. Bartells, Seattle; C. Vernon Basom, Port Angeles; B. A. Bannan, Seattle; T. H. Beaune, Port Angeles; Chas. H. Belvin, Portland; A. B. Benson, Port Angeles; Paul Blatter, Port Angeles; J. W. Bonnar, Port Angeles; Donald H. Braun, Port Angeles; G. C. Brewster, Shelton; Jim Brinkley, Seattle; R. E. Bundy, Port Angeles; P. G. Cannon, Port Angeles; E. J. Cavanaugh, Port Angeles; O. S. Cauvel, Port Angeles; Henry V. Charnell, Jr., Port Angeles; R. E. Chase, Tacoma.

N. W. Coster, Everett; J. V. B. Cox, Portland; George Cropper, Port Angeles; H. A. Des Marais, Portland; Fred Doherty, Port Angeles; George S. Douglas, Port Angeles; E. F. Drake, Port Townsend; George Durkee, Shelton; C. E. Dyar, Shelton; G. C. Eck, Shelton; J. G. E. Ellis, Port Angeles; E. T. Kline, Port Angeles; H. Fretz, Port Angeles; Howard C. Graham, Port Angeles; O. W. Greenwalt, Shelton; H. M. Gustafson, Seattle; E. J. Hanzlik, Olympia; A. N. Q. Hartnagel, Port Angeles; Bert S. Hatton, Seattle; A. H. Hooker, Jr., Tacoma; G. D. Humphrey, Vancouver, B. C.; E. F. Hucksep, Seattle; R. L. Kettenring, Port Angeles; W. A. Kelly, Portland.

Glen D. King, Port Angeles; M. E. Kinsey, Shelton; Dr. E. C. Lathrop, Camas; Norman A. Lewthwaite, Port Townsend; A. H. Lloyd, Port Townsend; E. Clair McCombs, Port Angeles; Jack Martin, Seattle; Wm. C. Marshall, Portland; Harry Murray, Port Angeles; Ray Porter, Port Angeles; Albert S. Quinn, Seattle; E. D. Reil, Port Angeles; H. H. Richmond, Portland; Steve Rupert, Port Angeles; S. A. Salmonson, Everett; Harlan Scott, Seattle.

W. Scott, Shelton; H. A. Searles, Port Angeles; J. L. Shackleford, Port Angeles; Kenneth Shibley, Seattle; H. W. Siefert, Seattle; H. N. Simpson, Port Townsend; Larry K. Smith, Seattle; Ray Smythe, Portland; P. S. Simcoe, Port Townsend; Earl G. Thompson, Seattle; John Turbitt, Port Townsend; J. V. Venables, Port Angeles; L. C. Van Arsdale, Port Angeles; H. A. Vernett, Portland; L. Warwick, Port Angeles; Henry E. Weller, Port Angeles; Stewart White, Port Angeles; N. T. Widmann, Port Angeles; W. H. Williamson, Portland; Leonard Ziel, Port Townsend; A. J. Schmitz, Seattle.

PARKER GOES EAST

Mr. Douglas Parker, assistant mill manager of the Powell River Company, Powell River, B. C., left March 1st for Iroquois Falls, Ontario, to assume new duties as mill manager for the Abitibi Power & Paper Company, Limited.

DR. SCHLOSSER GOES TO JAPAN

Dr. Paul Schlosser, rayon specialist of the Rainier Pulp & Paper Company organization of Shelton, Washington, left for a three months' trip to Japan on February 29th.

Dr. Schlosser sailed on the President Jackson from Seattle. He will perform technical service work for Rainier's Japanese customers.

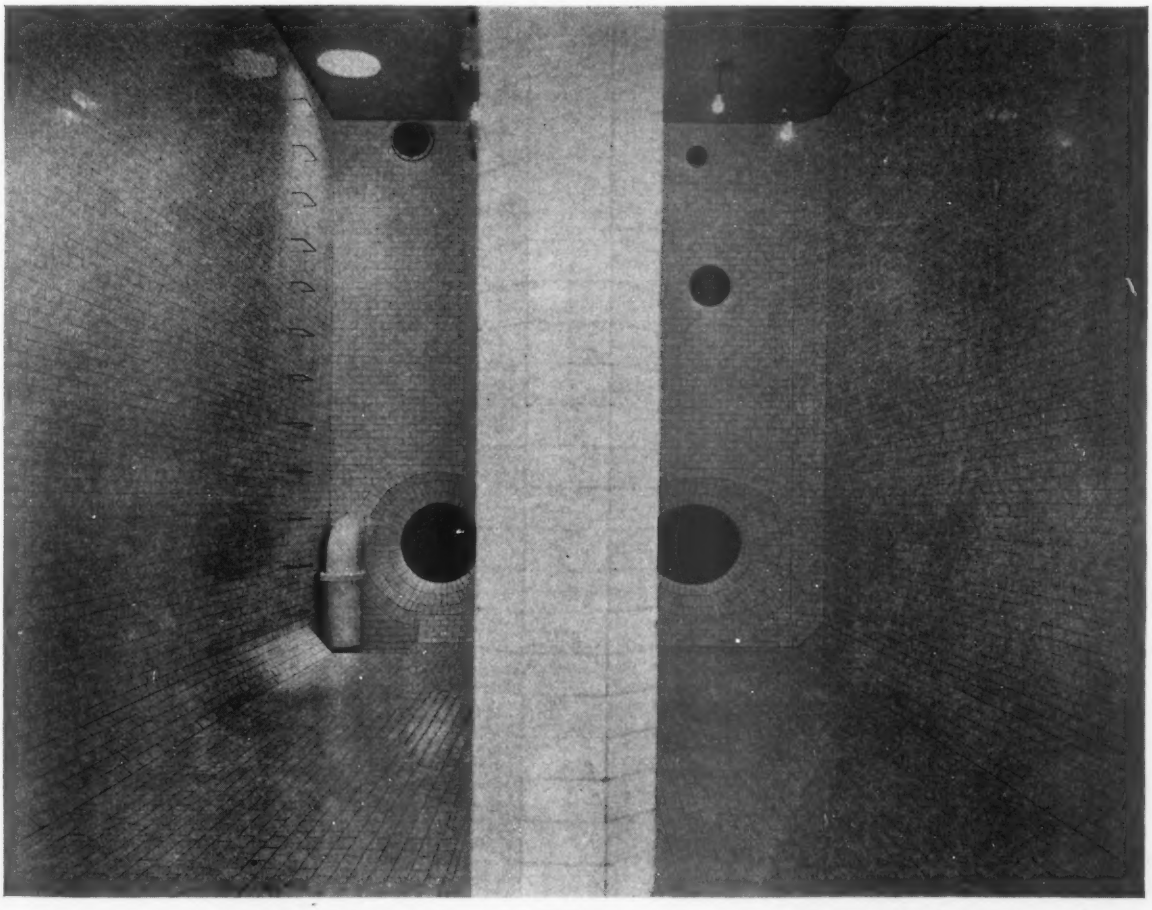
HODGES AND MORDEN TAKE OFFICES TOGETHER

Mr. Walter S. Hodges, Pacific Coast representative for the Orr Felt & Blanket Company, the Appleton Wire Works, the Asten-Hill Manufacturing Company and the American Wringer Company, moved February 22nd to new offices in the Pacific Building, Portland.

Mr. C. W. Morden, president of the Morden Machines Company, makers of the Morden Stockmaker is occupying the Pacific Building offices jointly with Mr. Hodges, having moved from the Oregonian Building.

The new telephone number is Beacon 9354.

SOUNDVIEW KEEPS ITS CLEAN PULP CLEAN



This recently finished bleached stock storage chest is an example of the care exercised by the Soundview Pulp Company of Everett, Washington, to keep its bleached sulphite pulp free of dirt.

Used for blending bleached sulphite pulp, the chest is 18 feet high, 18 feet wide and 39 feet long, and was lined with glazed white tile by the Stebbins Engineering & Manufacturing Company of Watertown, New York, and Seattle, Washington.

The openings to the circulating pump are each 3 feet in diameter. Stock of 1½ to 2 per cent consistency is circulated around the tile covered mid-feather in the foreground at the rate of 2,250 gallons per minute.

CAMAS PAPER SCHOOL CREATES GREATER INTEREST

108 Graduated from 1935-1936 Session; Two Scholarships Awarded

The Camas Paper School, which recently completed its third winter session, has attracted a larger number of students from among the employees of the Crown Willamette Paper Company than did the two previous sessions. One hundred and eight completed the current term of which number thirty-one composed the graduates of the third course.

Mr. A. G. Natwick, assistant mill manager of the Camas mill, is dean of the paper school and Mr. W. R. Barber, technical supervisor, is principal. They have outlined, in cooperation with other executives of the mill, a first year course which teaches fundamentals of pulp and paper making. The second year course embraces the application of these fundamentals to the processes of the Camas mill. The third year course is for advanced students. It carries the application of fundamentals still more deeply into manufacturing problems.

The men and women taking the courses exhibit intense interest in learning more about their own work and the part it plays in the complete manufacturing process. As a result of this study many have come to a better understanding of the problems encountered in the making of pulp, paper and paper products. The individual gains by acquiring more thorough knowledge of his or her own job and of the purpose of the job.

Benefits are mutual. The company gains through the greater interest and knowledge of its employees. A thorough understanding of the problems of the entire mill by a larger number of employees produces better individual work and greater satisfaction.

The Camas Paper School started October 22, 1935, and closed February 18, 1936.

After each lecture in the first and second courses the class is taken to the part of the mill which has been discussed and the lecture briefly summarized while the group is watching the actual manufacturing process.

The third year course was given for the first time this winter. It required fifteen weeks and sixty hours study in the mill plus five hours devoted to lectures.

Advanced class work is divided into five divisions, sawmill and chipping plant; kraft mill and screen rooms; sulphite mill, including the acid plant and bleach plant; beater room and control testing and, the paper machines.

Lecturers for all three courses are experienced men, the greater number being operators and department heads at Camas, but others come from Crown-Willamette and Crown-Zellerbach mills in other localities. Several lecturers have been operators and executives of pulp and paper mills not connected with Crown-Willamette, and still others are engaged in the selling of pulp and paper mill supplies and equipment.

Graduation Exercises

The graduation exercises of the Crown Willamette Paper School were held at a dinner given to the graduates by the company, on Tuesday evening, February 25th, at the Crown Willamette Inn. One hundred thirty persons were present including many of the lecturers who had instructed the classes. Speakers of the evening were Mr. Franklin T. Griffith, president of the Portland General Electric Co.; and Mr. D. F. Olds, superintendent of schools for Camas. Mr. A. G. Natwick, dean of the school, acted as toastmaster of the evening. Following the addresses, diplomas were presented by Mr. G. P. Berkey, vice-president and general manager of the Crown Willamette Paper Co.

The surprise of the evening was the announcement of the establishment of two scholarship awards which consist of a week's trip through many of the pulp and paper mills of the Pacific Northwest, with all expenses paid. These prizes were given to H. W. Ochs and H. P. Willis, third course graduates, in recognition of outstanding work during the school term. Similar awards will be given to two senior students showing greatest progress in their school work, each year in the future, according to the announcement of Mr. Natwick.

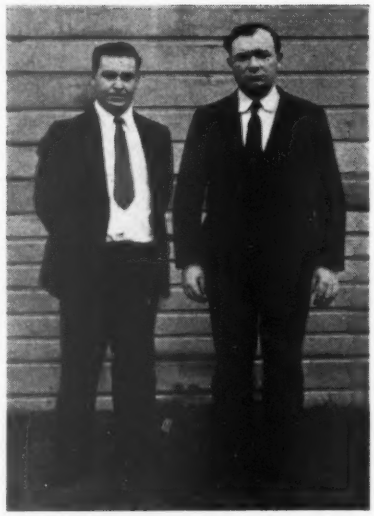
Mr. Olds' address, on the theme "The Challenge of Change," pointed out to the graduates the place of self-education following the school years, in a progressive way of living. Some people are afraid of change, Mr. Olds stated, but other people are swept off their feet by anything of a new nature. The reasonable course of action recommended to the graduates by Mr. Olds is a healthy balance between acceptance of the new and a firm footing on the accepted basis of civilization.

Mr. Griffith's address was of deep interest to those present because of his reminiscences of early associations with the companies which later grew into Crown Willamette and the Crown Zellerbach Corporation. Mr. Griffith's first position was with the California Paper Co., at Stockton, and in 1888 he was one of the witnesses who signed the articles of incorporation of the Willamette Paper Co., at Oregon City. The present executives of the company are deeply interested in the welfare of the personnel of their organization, Mr. Griffith brought out, and especially in the progressive step represented by the Paper School.

Presentation of the diplomas to the three classes was made by Mr. Berkey, as was also presentation of two honorary degrees to Mr. Otto Michaelis, sulphite mill superintendent and to Mr. E. W. G. Cooper, assistant machine room superintendent, in recognition of long years of service and contributions to the industry. The number of graduates receiving diplomas is as follows:

First Course	50
Second Course	27
Third Course	31

A. G. NATWICK
Dean of the Paper School



Left, H. W. Ochs; right, H. P. Willis, who were awarded scholarships upon graduation from the third year course of the Camas Paper School.

W. R. BARBER
Principal of the Paper School

Plan Fourth Year Course

The plan has been announced to add a fourth year course for the school year 1936-37, thereby completing a rounded four year course in pulp and paper manufacture and problems.

Piano selections which were much enjoyed by those present were rendered during the course of the evening by Mr. Herbert Prelinger and Mr. G. H. Gallaway of the Camas organization.

CAMAS PAPER SCHOOL SCHEDULES

The schedules of the three courses with the names of the lecturers are given below, followed by the names of those who were graduated in each course:

First Course

Oct. 22—"Groundwood Pulp," F. Sievers.
Prep. of Exam.—W. Barber.
Oct. 29—"Wood," John Strange
Moving Pictures
Prep. of Exam.—M. Franklin
No. 5—"Sulphite," Jan Haugerod
Prep. of Exam.—W. Kaye.
Nov. 12—"Wood Mill," H. Junge
"Water," E. H. Nunn
Prep. of Exam.—F. Williams
Nov. 19—"Pulp Bleaching," Raymond Hatch
Prep. of Exam.—H. Prelinger
Nov. 26—"Kraft Pulping," Carl Fahlstrom
Prep. of Exam—W. Barber
Dec. 3—"Beating, Loading, Coloring, Sizing," M. Bain
"pH Control," R. B. Wolf, Jr.
Dec. 10—"History Paper Making"
"Jordan & Refining," E. W. G. Cooper
Questions
Dec. 17—"The Paper Machine," H. E. Ostenson
Prep. of Exam.—V. Tipka
Jan. 7—"Steam," O. T. Defieux
"Electric Power," F. Stevey
Questions
Jan. 14—"Paper Finishing," Knapp
Questions
Jan. 21—"Bag Manufacture," J. Shively
"Converting Paper," J. Melody
Questions
Jan. 28—"Camas Paper Grades & Mfg. Specifications," F. A. Olmsted
"Paper Testing & Testing Instruments," T. R. Martin
Prep. of Final Exam.—Barber, Olmsted
Feb. 4—"Programming & Orders," H. M. Green
"Personnel," V. C. Gault
Feb. 11—"Purchasing," H. D. Kennedy
"Mill Accounting," W. J. Van Arnam
Feb. 18—"Mill Management," J. E. Hanny

Second Course

Oct. 24—"Water," G. Long
Mill Visit—Filter Plant
Prep. of Exam.—V. Tipka
Oct. 31—"Wood Mill," H. Junge
Mill Visit—Wood Mill
Prep. of Exam.—F. Williams
Nov. 7—"Chipping Plant," F. Swift
"Chip Testing," H. Glenn
Mill Visit—Chipping Plant
Prep. of Exam—H. Glenn
Nov. 14—"Camas Sulphite Mill," W. Kaye
"Sulphite Testing," F. Williams
Mill Visit—Sulphite Mill
Prep. of Exam.—W. Kaye
Nov. 21—"Camas Kraft Mill," A. Troetscher
"Kraft Mill Control," R. Mispley
Prep. of Exam.—W. Barber
Dec. 5—"Progress in Sulphite Pulping," W. N. Kelly
Mill Visit—Pulp Testing Station
Prep. of Exam.—F. Williams
Dec. 12—"Camas Bleach Plant,"—W. Kaye
"Pulp Diversion," Long
Mill Visit—Bleach Plant
Prep. of Exam.—W. Kaye
Dec. 19—"Camas Pulps Screening Systems," G. W. Charters
Mill Visit—Screening System
Jan. 2—"Qualities of Pulps for Making Papers," M. W. Phelps
Catch up on Mill Visits
Prep. of Exam.—E. H. Nunn
Jan. 9—"Beaters & Beating, No. 5 Paper Machine," Wm. Ashe
"Coloring Paper," Wm. C. Marshall, Roy Carey
Catch up on Mill Visits
Jan. 16—"Making Bread Wrap, No. 5 Paper Machine," C. Ostenson
Mill Visit—No. 5 Paper Machine System
Jan. 23—"Making Bag Paper on No. 6 Paper Machine," E. W. G. Cooper
Mill Visit—No. 6 Paper Machine System
Jan. 30—"Drying Paper on Nos. 5 & 6 Machines," O. T. Defieux
"Paper Machine Ventilation," Sid Drew
Prep. of Final Exam.—Barber, Tipka
Feb. 6—"Significance of Paper Tests Upon Use of Paper: Bread Wrap, Other Grades," E. H. Nunn, W. Barber
Feb. 13—"Building A Paper Mill," K. Siecke
Review Questions
Feb. 20—"Mill Maintenance," G. W. Charters

First Year Graduates

Graduates of the first year course include:

Mary Allen, E. C. Allen, E. C. Aslin, A. R. Barge, Chester T. Beals, Charles Betts, George V. Berkey, Thomas F. Buford, Burr Canfield, Claud Christianson, R. P. Cochrane.

E. G. Davidson, S. DeWeese, P. T. Dickie, Aaron Dunn, Marion A. Edwards, Leo H. Eggebraaten, Howard Ells, Andrew Evanger, W. Harms, Roy Haskins, D. R. Hewitt, W. Hughes.

Richard John, Gordon Junge, William P. Luthy, Gerald T. Mallott, William D. McGrath, Al Meade, J. L. Miller, C. Odoms, Luther S. Olson, O. V. Owens.

Vern Peer, Tony Pleiss, J. C. Pollard, Orton L. Rondeau, Robert Simpson, Fred Schick, Dalton L. Shinn, L. N. Smith, Alfred J. Tate, Harry F. Thornton, Leona Van Arnam, L. E. Wasser, W. G. Webb, B. Weidenbaum, S. E. Wightman, John M. Wolfe, L. Wright.

Second Year Graduates

Those receiving second year diplomas are:

L. Bastian, P. T. Dickie, Edward Fredericksen, Willis Fry, M. M. Greer, R. C. Hayes, R. Hetherington, A. A. Jacquot, Irvin P. Jessen, A. K. Jones, E. R. Knauf.

Vic Lau, L. F. Maybach, Walter M. Miller, Harold Nevin, Clayton Rudesill, H. Radford Russell, E. A. Scott, Clarence G. Shaw, Dalton L. Shinn, J. L. Smith, T. J. Stenehjem, Lyle E. Tidland, Earl Tucker, L. E. Wasser, B. Weidenbaum, Sprague N. Yeager.

Third Year Graduates

Those receiving third year diplomas are:

G. C. Bailey, C. J. Beaver, J. A. Birkemo, H. E. Burrell, E. R. Craig, O. B. Hanson, M. B. Hill, C. M. Howell, R. Knuth, H. W. Ochs, E. A. Price, H. Rickard, C. B. Roberts, K. H. Siecke, H. P. Willis.

T. R. Martin, R. G. Mispley, W. A. Kaye, Francis Flynn, Walter Jacoby, Forrest Williams, R. B. Haight, Harry Glenn, Milton Franklin, J. H. Hull, G. H. Gallaway, E. H. Nunn, M. K. Rawlings, Floyd Aslin, Herbert Prelinger, V. L. Tipka.

SHERA RETURNS FROM EXTENDED EASTERN TRIP

Mr. Brian Shera, assistant superintendent of the Pennsylvania Salt Manufacturing Company of Washington, with headquarters in Tacoma, returned late in February from a six weeks trip which took him to Penn Salt headquarters in Philadelphia and to many of the pulp and paper mills in the Middle West and in the East.

While away Mr. Shera was engaged primarily in service work, calling on pulp and paper mills where the Penn Salt system of pulp chlorination is in operation. He installed three new systems, in a kraft, a soda and a sulphite pulp mill. The service work carried him into Michigan (where Penn Salt has a large chlorine, caustic soda and by-product plant at Wyandotte), Wisconsin, Ohio and New York.

Upon his return Mr. Shera commented to the effect that the larger progressive mills on the West Coast are further advanced in the science of bleaching than were the mills he visited in the Middle West and East. This is probably due, he believes, to the fact that Western mills are offering their pulp for sale, while the Eastern mills largely have paper mills in conjunction with their pulp mills.

He observed that a large volume of foreign chlorinated, semi-bleached and easy bleaching pulp is being further processed by the mills using it, the work being done for the greater part in the horizontal type Bellmers.

Mr. Shera visited the new waste liquor recovery plant at the mill of the Marathan Paper Mills in Rothschild, Wisconsin.

Glad to be back on the Pacific Coast, Mr. Shera reported he had driven in blizzards when the temperature was 38 degrees below zero.

POWELL RIVER CHANGES SHIPPING ARRANGEMENTS

Powell River Company has closed a deal with Mallory Steamship Company whereby the latter will be operating ships from the British Columbia paper town to Houston and other Gulf ports during the present year.

The new service to this coast replaces, in the newsprint traffic to the Gulf, the Gulf-Pacific Line. Owing to prolonged labor troubles the Gulf-Pacific arrangement was not entirely satisfactory as shipments were constantly delayed through longshore and seamen's disputes. Mallory Line will use chartered foreign vessels chiefly, thus eliminating the prospect of trouble to some extent as American coastwise vessels were chiefly affected by the labor unrest.

WEYERHAUSER DIRECTORS INSPECT EVERETT MILL

Four directors of the Weyerhaeuser Timber Company from the Middle West came to the Pacific Coast the last week in February and while here inspected the new unbleached sulphite pulp mill nearing completion at Everett, Washington.

Those who came from St. Paul were: Mr. F. E. Weyerhaeuser, president of the company; Mr. H. H. Irvine, treasurer, and Mr. A. W. Clapp. From Chicago came Paul and Laird Bell.

NEW EUROPEAN SULPHITE AGREEMENT

The Finnish Paper & Timber Journal for January 31st, 1936, reports that:

"The committee recently appointed by Sulphite Pulp Suppliers (SPS) to negotiate a new agreement has met in Stockholm. The committee agreed to accept the proposal for a new understanding which has been under discussion since last summer. The new agreement will be in force during 1936, 1937 and 1938.

"The object of SPS is to regulate sales of sulphite cellulose so as to correspond to the actual demand. According to the new agreement the export quota of each supplying country will be definitely fixed. For 1936 the demand has been estimated at 2,350,000 tons, which quantity is to be divided up between the producing countries in relation to their output capacity. The decision is now to be ratified by the interested industries."

FIR-TEX MARKET EXPANDING

Fir-Tex Insulating Board Company, St. Helens, Ore., reports a steady increase in the demand for Fir-Tex and a good outlook for 1935. The building trade especially is well pleased with the lighter color product, the result of changes and improvements in methods over the past year. For some months the plant has been running 24 hours four days a week.

Manufacturing process and equipment has now been perfected for the production of finished planking and acoustic tile. Decorative grooves and lines are now cut with a saw upon a quantity production basis.

The company is initiating an advertising campaign in magazines which reach prospective home builders. The first copy will appear early in April.

WESTERN PULPWOOD SHIPPED FOR TESTING

A carload of Oregon and Washington pulpwood selected for experimental tests was shipped recently by the Pacific Northwest Forest Experiment Station, Portland, to the Forest Products Laboratory at Madison, Wisconsin.

The purpose of the shipment was to determine whether or not definite relationship exists between the rate of growth, density and other wood characteristics of western species and the type of pulp produced. Such relationships already have been found to exist, by the laboratory, with regard to eastern pulpwoods tested. The results of the investigation will be made public as soon as obtained.

Material shipped consisted mainly of western hemlock and Sitka spruce grown on the experiment station's Wind River Experimental Forest near Carson, Wash. It was selected so as to provide samples of both rapid and slow growth in old growth as well as second growth timber.

The U. S. Forest Products Laboratory associated with the Pacific Northwest Forest Experiment Station in forest research has figured prominently in national wood and timber experimental projects and among its other facilities maintains pulp and paper making equipment.

NORMAN KELLY ATTENDS TAPPI CONVENTION

Mr. W. Norman Kelly, manager of the Longview mill, Pulp Division Weyerhaeuser Timber Company, attended the annual winter meeting of TAPPI at the Waldorf-Astoria hotel in New York City from February 17th to 20th.

RICE STRAW PROJECTS SITE SOLD

What apparently was the end of a dream of a pulp and paper mill in the Sacramento Valley of California came with publication of a news note in an Oroville newspaper that the Pacific Coast Pulp & Paper Corporation's property at Richvale, near Chico, would be offered for sale by its trustees February 29. It was planned several years ago to manufacture pulp from rice straw and make coarse paper there.

PENN SALT SUBSIDIARY BUILDING PLANT AT TACOMA

The Pennsylvania Salt Manufacturing Company through a subsidiary, the Wypen Company, has started construction of an oil hydrogenation plant adjoining the Penn Salt liquid chlorine and caustic soda plant in Tacoma.

Hydrogen, now a waste product from the manufacture of chlorine and caustic soda from salt, will be utilized in hydrogenating fish and vegetable oils in the Wypen Company's oil refining plant. Oils will be brought from Alaska, British Columbia and other parts of the Pacific Northwest for refining and hardening. Formerly the nearest plant of this type was in California.

It was announced that the oils will be processed in the Tacoma plant for use by other concerns in manufacturing soaps and food products. Mr. Fred Shaneman is manager of the Pennsylvania Salt Manufacturing Company of Washington with headquarters in Tacoma.

PLANT RUBBER OPENS NORTHWEST OFFICES

The Plant Rubber & Asbestos Works of San Francisco has made new arrangements for the distribution of their products in Washington and Oregon.

The Asbestos Supply Company now carry complete stocks of Plant Packings, Insulating Materials and Refractory Plastics in their warehouses in Seattle, Tacoma, Spokane and Portland. The Asbestos Supply Company has been in business thirteen years and are in a position to satisfactorily serve customers who desire Plant products.

Mr. Fred Miller is Northwest District Manager for Plant Rubber & Asbestos Works. He is available through the four offices maintained by Asbestos Supply Company, and engineers and purchasing agents are urged to take advantage of his long experience in connection with problems found in the industries in Washington and Oregon.

The Plant factories are located on the West Coast. There is a natural community of interest between the industrial concerns in the Far West and Plant whose personnel and equipment have been especially developed to serve this market.

B. C. EXPORTERS BENEFIT

British Columbia exporters of wrapping paper and strawboard have benefitted considerably by the new tariff schedule adopted by the Australian house of representatives, and shipments have increased accordingly. Wrapping paper under British preference is reduced from nine shillings a ton to five shillings, and under the general tariff from eleven shillings to seven shillings. Strawboard not corrugated under the British preference is reduced from two shillings to one shilling and under the general tariff from three shillings and sixpence to two shillings and sixpence.

OJI PAPER COMPANY SEEKING NEW SOURCES OF SUPPLY FOR WOOD PULP

Following the action of the North Saghalien government to restrict felling of pulpwood in order to conserve the fast diminishing timber resources of the territory, the Oji Paper Company is looking around for possible sources of supply of pulpwood, according to reports appearing in the Japanese press. Among those mentioned is the Japanese-owned timber concession on Queen Charlotte Island, British Columbia. The company is also understood to be turning its attention to the timber resources of Netherland India. Java timber has always been regarded as unsuitable for pulping, but claims are being put forth that new technical methods have been evolved overcoming this handicap, and the Oji Company is reported to be sending engineers to Java to investigate possibilities there. The too-strict regulations of the "Manchukuo" government regarding the amount of pulp which might be produced in a year is understood to have ended the Oji Company's plans for wood pulp developments in that territory.—Assistant Trade Commissioner Carl H. Boehringer, Tokyo.

JAPANESE IMPORTS OF WOOD PULP LARGER IN 1935

Wood pulp imports during the month of November reached a total of 19,972 short tons, including 10,662 tons of pulp of paper making and 9,311 tons of pulp for rayon manufacture. November imports of pulp for paper making were 3,544 tons and those for rayon manufacture 799 tons below receipts during the preceding month. Imports of both classes of pulp from the United States during November totaled 7,865 tons, representing 39 per cent of the total imports, but falling 2,781 tons short of imports from the same source in October. The remaining imports for both months came from European countries.

Imports of wood pulp during the first 11 months of 1935 reached an aggregate figure of 276,739 tons, an increase of 32 per cent over receipts during the corresponding period in 1934. The United States supplied 41 per cent of the 1935 importations as against 36 per cent in 1934.—Assistant Trade Commissioner Carl H. Boehringer, Tokyo.

INCREASE IN JAPANESE PRODUCTION AND SALES OF PAPER

Production of foreign style paper in November amounted to 74,142 short tons, according to the Japan Paper Manufacturers' Association, showing an increase of 1,346 tons against the previous month's output and an increase of 4,278 tons compared with the corresponding month in 1934. Production for the first 11 months of 1935 totaled 787,812 tons, an increase of 8.6 per cent compared with the corresponding period in 1934. Sales during the first 11 months of 1935 totaled 765,416 tons, an increase of 5.3 per cent over 1934. Imports of paper during this period amounted to 75,266 tons valued at 12,528,209 yen, an increase of 23 per cent in volume and of 27 per cent in value over the corresponding 11 months in 1934.

CROWN-WILLAMETTE BUYS TUG

Crown-Willamette Paper Company recently placed an order for the construction of a new tug for the West Linn plant. This is similar to the tug Constance J recently delivered for work at the Cathlamet operation of the company.

It's Here!!

A NEW, PROVED METHOD OF FURNISHING FILLER TO PAPER . . .

The many disadvantages of present day methods of furnishing filler to paper takes a costly toll in money, time and labor. A constant search heretofore for improved methods has proved unsuccessful. But now, after several years' research and actual mill operation, the FAIR SYSTEM offers a real solution to the problem. Here are only a few of its outstanding advantages that will interest you:

Accomplishes a material increase in retention . . . for example where 60% retention was formerly obtained it has been increased to 90%. Relative increases have been accomplished generally.

With reduction in clay content in rich white water returned to fan pump, there is less dirt accumulation in pipe lines, screens and head boxes, with fewer "lump" breaks on the machines.

Improves washing and deckering conditions.

In many cases, it has decidedly improved machine operation.

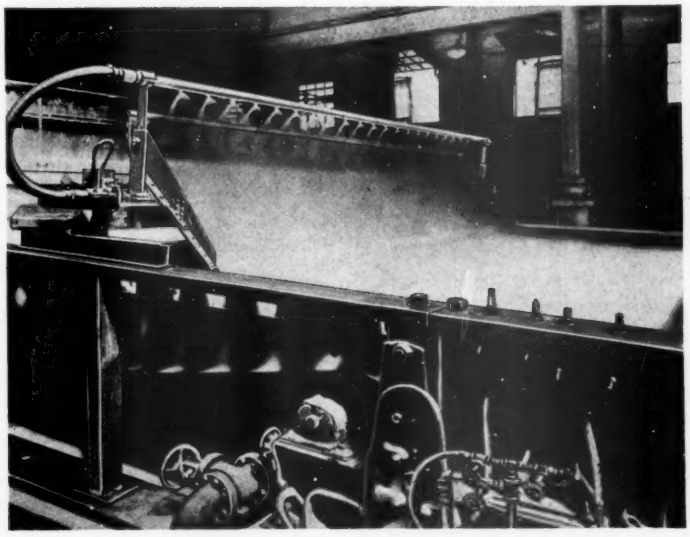
Operation of system is very flexible, a feature of particular value when changing orders.

It will pay you to investigate this revolutionary, new method of furnishing filler to paper. Descriptive, illustrated literature will be mailed, gladly, upon request.

THE FAIR SYSTEM

Developed by

ECONOMY FILLER PROCESSES, Inc.



Patented in Canada • *U. S. Patents Pending*

PACIFIC COAST REPRESENTATIVE

A. H. LUNDBERG

3311 First Avenue South — Seattle, Wash.

Branch of

PAPER AND INDUSTRIAL APPLIANCES, INC.

122 EAST FORTY-SECOND STREET, NEW YORK CITY

Time harnessed b

Assure absolutely uniform cooking cycles by automatic regulation of your time-temperature and time-pressure schedule with the Taylor Sulphite Digester Control System

YOU can be certain that the ideal cooking cycle for any particular grade of stock will be followed at any time. You can be sure of getting the maximum production of No. 1 stock at lowest possible conversion cost.

The Taylor System of Sulphite Digester Control does all this, and assures stock uniformity in color, freeness and strength. It gives a stock that felts, forms, and dries well. It reduces "tailing" losses. It cuts losses due to failure of digesters to blow cleanly.

This Taylor System controls and coordinates temperature and pressure exactly. In the steam flow control it even compensates automatically for variations in gas pressures.

The Cam (in the left-hand case of the controller) is the absolute regulator of the cycle. It harnesses time. It directs the operations in the processing cycle. Any number of cooking schedules can be used simply by cutting new Cams to suit. And the cycle control is identical every time it is repeated. The Cam assures maximum and economical production.

The ease and certainty with which the Cam and the rest of the Taylor Control System regulate temperature and pressure in the sulphite process is being proved every day. Let us show you how you can use it in your mill.

Ask the Taylor Representative about this system—and others designed specially for paper mills. Or write Taylor Instrument Companies, Rochester, New York. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

. . .

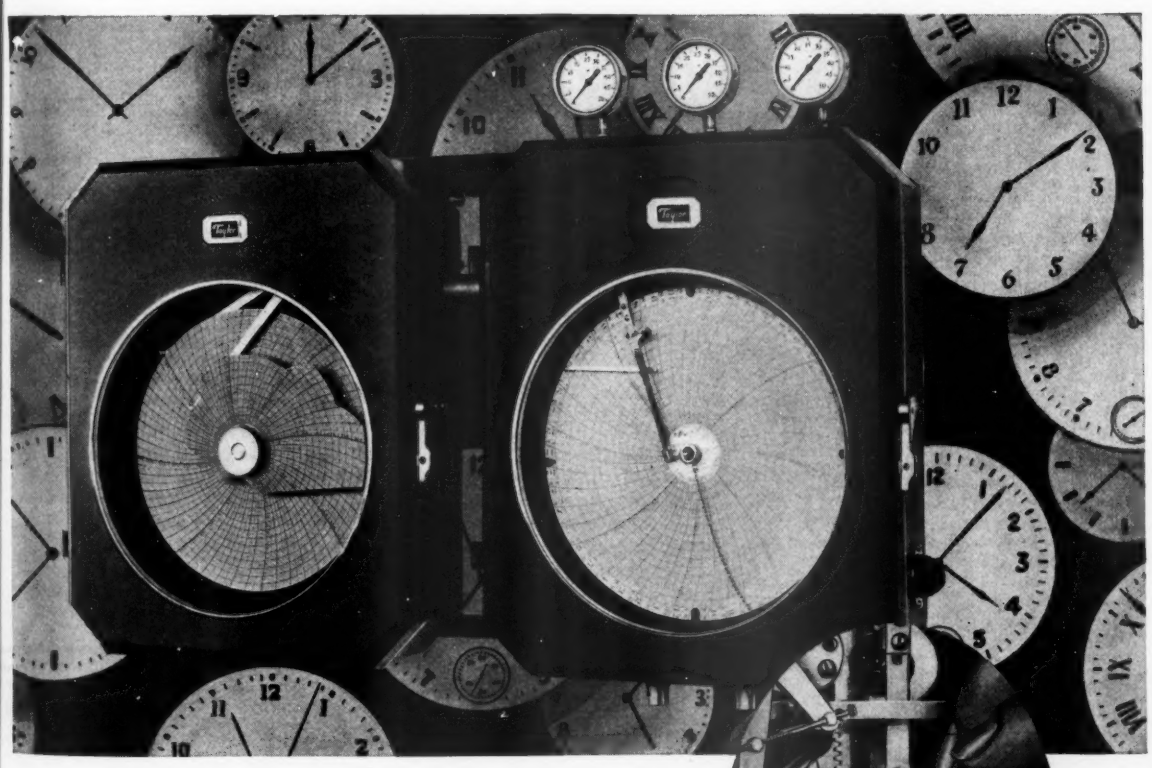
Pacific Coast Sales Offices—Aronson Building, San Francisco, Cal., and Central Building, Los Angeles. Also, the Terminal Sales Building, Portland, Oregon.

Taylor

Indicating · Recording · Controlling

TEMPERATURE, PRESSURE *and* FLOW INSTRUMENTS

d by a CAM!



The Cam and the time-schedule mechanism of the Taylor Sulphite Digester Control are in the left-hand case. The Taylor Fulscope Recording Controller, which sees that each step in the cooking cycle is carried out at the time ordered by the Cam, is in the right-hand case. A marvelous pair of operatives.

WAGES PAID GERMAN PAPER MILL WORKERS DECLINED IN 1935

The Forest Products Division of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, has recently released a report from Mr. W. S. Jesien, American Consulate General at Frankfort, Germany, which is of interest to the entire American pulp and paper industry. Mr. Jesien reports that:

"Wages and working conditions dropped to lower levels during 1935. Although wages are strictly controlled by the national socialistic labor officials, the existing system of wage scales lends itself to various adjustments, and such adjustments of late have invariably been downward. The cost of production is not benefitted by such action since any concessions to manufacturers on the part of labor officials are usually connected with requests for employments of extra hands, or for social work organizations, or similar activities. A survey of wages and earnings in the paper industry carried out in April, 1935, showed an average wage rate of 0.636 mark per hour for all workers. The average gross weekly earnings for a week of 48.39 hours was 30.75 marks (about $12.00 at the official rate of exchange). From the gross earnings 11.5 per cent were deducted for social insurance and other compulsory deductions. Unofficial deductions for national socialistic purposes are reported to bring the total taken out of the worker's pay envelope up to nearly 20 per cent of his wages.

German Paper Mills Increase Activities During 1935

"No salient developments took place in the German paper industry during 1935, such changes as were recorded being in the nature of seasonal activities, according to Mr. W. S. Jesien, American Consulate General, Frankfort. Production during the summer was higher than the year before, and the activity during the fall months, and particularly the Christmas orders, brought satisfaction to all divisions of the industry. Production figures for 1935 are not yet available, but preliminary estimates place paper production at 2,220,000 metric tons (metric ton equals 2,205 pounds) and board production at 555,000 tons. Statistical returns are now on a new, enlarged basis and these figures are therefore not strictly comparable with preceding years. Various other factors, however, point to increased output in the paper industry.

"The market for newsprint, book, and writing papers assumed a new complexion, owing to the rearrangement of the principal customer groups. Activity increased in the publishing, advertising and office branches. At the same time, the market became more centralized, both geographically and with regard to the number of customers. The rule was larger orders for selected grades, but while the general volume of business increased, some mills were badly neglected in the award of orders. Wrapping paper was likewise affected by the unbalanced condition of the market setting up extremely active demand for some sorts and grades and pushing others into the background.

"The greatly improved export trade contributed materially to the higher rate of mill activity in 1935. Needless to say these successes were achieved at enormous price sacrifices. When it is considered that the principal competitor nations on the world markets possess such important advantages as unlimited supplies of pulpwood, cheap waterpower and cheap labor, in addition to being able to quote in depreciated currencies, the difficulties facing the German paper exporter will be readily apprehended. The German paper industry developed an exceedingly active export campaign during 1935, and succeeded in increasing its paper exports 38 per cent in volume. The value of these shipments, however, increased only 24 per cent. Exports of boards from Germany increased 5 per cent in both quantity and value, while exports of wood pulp dropped off 5 per cent in volume and 15 per cent in value. Figures for the entire year are not yet available. Exports for the first 11 months of 1935 comprised 275,442 tons of wood pulp, 76,374 tons of boards, and 227,354 tons of paper, with a total valuation of 101,851,000 marks as against 93,379,000 marks in the corresponding period in 1934.

"If the flow of orders occasioned no distress to the paper industry, the supply of raw materials was at times insufficient or was delayed. Domestic pulpwood prices remained stationary, but were classified in a manner that was tantamount to an advance in price. Prices of rags went up quite appreciably and the supply was scarce. Prices quoted on straw, felts and other mill supplies also advanced considerably. Water was low at various times, occasioning production disturbances and higher power costs.

"There were fewer bankruptcies and insolvencies during 1935 than the year before.

Low Prices Remain a Weak Spot in German Operations

"Despite the statistical evidence of improvement, paper manufacturers in Germany do not express any marked enthusiasm over the present situation or the immediate outlook. Reports from various sources indicate that the paper mills are faced with immense difficulties in making their operations remunerative. The phrase "Mengenkonjunktur" (quantity improvement) continuesto be used in description of the present status of the industry. The rate of utilization of plant capacity is still low, and the pressure of high prices paid for raw materials, the heavy taxation, the excessive numbers of workers employed in response to government appeals, tend to make it ever more difficult to make both ends meet. As price adjustments are practically prohibited, the tension remains unrelieved. One of the cardinal principles of the governmental economic policy is the preservation of the existing price level. The control of prices is exercised either by way of prohibitive decrees or by influencing the national associations of the respective industries. Price adjustments are theoretically possible, with permission of the government authorities but such permission is granted only in cases of extreme distress affecting the existence of a whole industrial division. The German paper industry can hardly find a parallel in past years for the dead level of prices prevailing during 1935.

Competition Between Mills Extremely Active

"The industry was characterised by a keen competition during 1935. Manufacturers of printing papers organized early in 1935 a cartel called "Holzhaltig-Holzfrei," comprising manufacturers of the groundwood and non-ground wood papers. This development terminated a period of drastic competition within the groups referred to. The accession of manufacturers to the cartel was 100 per cent. The life of the organization was fixed provisionally up to the end of 1937. Control of prices and assignment of production quotas lies within the province of the organization, but owing to government control of prices and governmental interference with business, the activities of the cartel are greatly restricted.

"In the wrapping division, little progress was made in the cartelization of the industry. Competition continued unabated not only between individual mills but between various groups in the industry. The government order prohibiting manufacture of new classes of paper and board in mills not previously turning out such classes helped to mitigate the competition to some extent.

Raw Material Shortage Acute In German Industry Last Year

"Board mills particularly complained of the scracity of straw, old paper and rags last year, as well as the difficulty in obtaining adequate supplies of pulpwood. An important section of the German board industry centers in Saxony and relies on Czecholsovakia for its supply of pulpwood. During 1935 Czechoslovak wood was imported under clearing arrangements which did not work smoothly and occasioned a great deal of trouble and delay.

"Difficulties were also encountered in obtaining sufficient supplies of straw. The domestic supply from the 1934 harvert was unusually low, and imports were handicapped by exchange difficulties. Straw prices soared to prohibitive levels until the 1935 harvest became available. The shortage of tags was even more acute inasmuch as the domestic rag supply had always been far from adequate and the exchange situation also interfered with imports of this necessary raw material. In order to meet the requirements of the paper industry for rags, special collecting activities were developed. A considerable supply also became available from the attic clearing action carried out during the year at the instance of the air warfare protective association. The supply of old papers was ample, the only difficulty experienced having been on the part of western German manufacturers who had been accustomed to import their requirements from England."

ST. HELENS OFFICERS RE-ELECTED

All officers of the St. Helens Pulp & Paper Company of St. Helens, Oregon, were re-elected at the annual meeting of the directors held in Portland, February 18th, 1936.

The officers re-elected were Max Oberdorfer, president; Dr. Robert Ellis, vice-president; Irving T. Rau, secretary-treasurer, and H. F. McCormick, chairman of the board.

BRITISH COLUMBIA TO INVESTIGATE FOREST RESOURCES

Spurred to action by the warnings of Ernest C. Bakewell, former chief chemist of Pacific Mills, Ltd., at Ocean Falls and now a member of the legislature, the provincial government has decided to hold a thoroughgoing investigation of British Columbia's forest resources.

Believing that the ultimate destiny of a large area of British Columbia forest land lies in pulpwood development, special consideration will be given to the availability of pulpwood stands, their accessibility to transportation, extent and general nature. Captain C. S. Leary, chairman of the forestry committee of the legislature and himself a practical logging operator, will be in charge of the survey and Chief Forester E. C. Manning has been instructed to assemble all the data available on the subject. It is proposed to hear several independent witnesses as well as government experts.

Mr. Bakewell, who in recent months has been making a first-hand study on his own account of the British Columbia timber resources, told the legislature that British Columbia has only 8,395,000 acres of timber left, as compared with 180,000,000 acres seventy years ago and 100,000,000 acres in 1918. He claimed that a vast amount of valuable timber has been permanently destroyed because of the lack of an effective forest policy.

Sixty thousand acres of timberland have been cut over annually for years, said Mr. Bakewell, but the fire losses totalled 665,000,000,000 board feet up to 1918, or nearly twenty-two times as much as the 30,000,000,000 feet cut by lumbermen up to that time.

The late Chief Forester P. Z. Caverhill informed the legislature last year that British Columbia possessed 111,000,000,000 feet of accessible timber. In addition, he said, there was 245,000,000,000 feet of comparatively inaccessible forest of doubtful commercial value, as compared with 1,500,000,000,000 feet in 1865.

Mr. Bakewell contends that the Douglas fir in mature stands will all be exhausted in British Columbia within twenty years. There is now a total of 42,000,000,000 feet of this species but only 26,000,000,000 feet is readily accessible, and the average cut is 1,200,000,000 feet.

Nine hundred billion feet of timber has been destroyed by fire in British Columbia in the last seventy years, according to government records. The commercial cut in that period is figured at 105 billion feet, while 87 billion feet was destroyed by insects, 33 billion feet by wind and 19 billion feet by disease.

Mr. Bakewell insists that ruthless cutting methods are chiefly responsible, and he demands a revolutionary change in the logging practices of British Columbia. He disagrees with the contention of loggers that selective logging is not practical in British Columbia because of the more difficult topographical conditions encountered there. As one means of protecting timber he suggested a tax of 75 cents a thousand on all timber cut, the levy being turned over to a reforestation fund.

Annual cutting of Christmas trees in British Columbia forests is also condemned by Mr. Bakewell, who says that 65,000 trees were cut near Powell River alone. To replace them with seedlings would cost $2500, which was more than the contract price in wages.

SAFETY IN WALKWAY SURFACES*

Walkway surfaces should provide permanent resistance to slipping and present no tripping hazard.

The proper application of a hard, sharp and tough abrasive seems to offer the best material to satisfy all of these conditions.

Norton Company, as manufacturers of all types (of abrasives) recommends the use of **ceramic bonded** products.

Economy: At present prices, ceramic bonded abrasives will provide per dollar cost, 1 1/3 times the volume of abrasive material than aluminum oxide abrasive grain and more than two times the volume than silicon carbide abrasive grain.

Resistance to Wear: Ceramic Bonded Abrasives provide a much stronger bond with Portland Cement and in consequence offer a greater resistance to wear than does silicon carbide or aluminum oxide abrasive grains.

From laboratory tests using standard briquettes the following comparisons were obtained:

Material	*Mix*	*Tensile Strength*
Abrasive Gr.	1:1	560 lbs. per sq. in.
Ceramic Bonded Abrasive	1:1	750 lbs. per sq in.
Abrasive Gr.	1:2	390 lbs. per sq. in.
Ceramic Bonded Abrasive	1:2	480 lbs. per sq. in.

From tests made at Columbia University on samples of concrete made by the use of various kinds of aggregates we have these comparisons:

Sample	*Tensile Strength lbs. per sq. in.*	*Resist. to Wear (Relative)*
Gravel-Concrete	468	14.8
Granite Concrete	521	19.6
Trap-Rock-Concrete	639	17.8
Ceramic Bonded Abrasive-Concrete	781	23.1

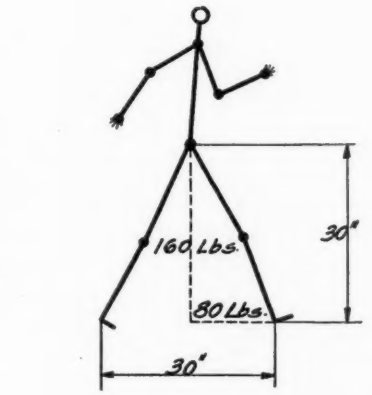
*Notes from a paper presented before the Municipal Engineers of New York City, October 23rd, 1935, by Edward Van de Pyl. Reprinted from "Grits and Grinds," Vol. 26, No. 6. Norton Company, Worcester, Mass.

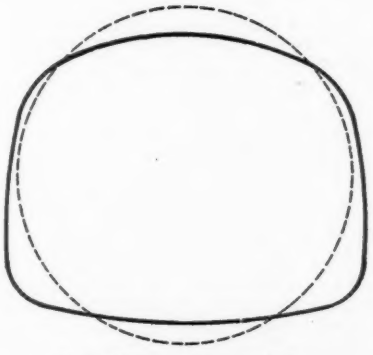
Resistance to Slipping: The following figures represent a relative value of "resistance to slipping." These figures were obtained through a simple experiment which consisted of measuring the resistance of a 7½ lb. weight having a 6 sq. in. "foot area" of shoe leather, as it was dragged over the surface. These values were multiplied by 20 to be comparable to the results produced by a 150 lb. person. Thus we have a relative value of resistance to slipping for different surfaces as follows:

	Relative Value
Rubber Tile, waxed	35
Polished Traratine Marble	35
Marble Terrazzo	45
Worn Concrete, fine sand	55
iWorn Concrete, coarse sand	65
Worn Concrete, Silicon Carbide Abrasive Grain	70
Alundum Aggregate in Marble Terrazzo	75
Limestone (soft)	80
Velvet Carpet, worn	85
New Concrete with Silicon Carbide Abrasive Grain	90
Concrete with Alundum Aggregate	100
Alundum Rubber Bonded Safety Tread, worn	100
Alundum Tile	100

In the manufacture of ceramic bonded abrasive tiles not less than 35 per cent abrasive content must be used to provide effective resistance to slipping; and to provide a high resistance to wear as much as 80 per cent abrasive content should be used.

When resistance to wear is less important than resistance to slipping the abrasive material can be sprinkled onto and lightly trowled into the surface. Where resistance to wear is of equal importance to the resistance to slipping the abrasive material should be incorporated into the top surface mix and applied to a depth of ½" to ¾".





Sole Print—6 Square Inches

Figure 1. A 160-lb. man at normal 30-in. stride and walking at the rate of five feet per second will develop a momentum represented by a force of 25 lbs. In the direction in which he is traveling, should he stop abruptly at the height of his stride he might develop in addition, a horizontal force of nearly one-half of his weight, or 80 lbs. All applied on an area of no more than six square inches of walking surface.

PUGET SOUND REPORTS 1935 PROFIT

A net profit of $31,075.05 was reported by the Puget Sound Pulp & Timber Company for 1935. Net income amounted to $282,283.90 before deductions of $194,211.61 for depreciation and $56,997.24 for depletion.

Current assets as of December 31, 1935, including $306,343.50 of cash, totaled $667,864.87 compared with current liabilities of $238,719.85. A ratio of 2.80 to 1.

President Ossian Anderson reported that during the year the company's indebtedness was reduced by $160,811.46. Improvements to plants totaled $78,871.59. During 1935 two dividends were declared out of 1934 earnings totaling $62,135.44.

The Bellingham unbleached sulphite pulp mill operated continuously during the year, but the Anacortes unbleached mill was shut down for three months due to the strike of the Sawmill and Timber Workers union which tied up its source of wood supply. Logging operations out of Clear Lake were approximately 50 percent of capacity, but were tied up for three months during the summer due to the same strike.

There was no strike in any of the company's operations but dependence on market outlet for logs from Clear Lake and sawmill operations at Anacortes resulted in the curtailed operations.

It is planned to double the logging operations at Clear Lake in April, 1936, President Anderson reported.

POWELL RIVER—AN IMPORTANT BRITISH COLUMBIA INDUSTRY

The Vancouver, B. C., Sun for February 15th, featured a story on the growth of the Powell River Company of Powell River, B. C., entitled "A City That Paper Built."

It was pointed out the large contribution the Powell River Company makes toward the income of British Columbia. The population of the town is 6,000 and the company employes 1,500. The annual payroll is approximately $2,250,000. Materials purchased annually total $3,250,000, 93 percent of which is Canadian and 77 percent from British Columbia. About 144,000,000 board feet of logs are consumed annually in making newsprint which totals 200,000 tons per year. 92 percent of the newsprint is exported to the United States, Australasia, China, Japan and South America.

TAPPI SUMMER MEETING TO BE IN CANADA

A joint summer meeting of TAPPI and the Technical Section of the Canadian Pulp and Paper Association will be held from August 3rd to 7th, in lieu of the regular national Fall meeting.

The first day will be devoted to a business session at the Windsor Hotel in Montreal. Much of the remaining time will be spent cruising in the steamship Quebec on the St. Lawrence River, with visits to the mills of the Anglo-Canadian Pulp & Paper Company, Donnacona Paper Mills, Price Brothers, the plant of the Aluminum Company and the power development at Isle Maligne.

August 4th will be spent in Quebec. The 7th, on the boat, will be devoted to business sessions and the reading of papers.

Additional information may be obtained from Mr. R. G. Macdonald, secretary of TAPPI, 122 East 42nd Street, New York City.

WORK OF THE IMPORT COMMITTEE

In the monthly review published by the American Paper & Pulp Association for December, 1935, the work performed by the Import Committee of which Mr. Warren B. Bullock is manager, is outlined as follows:

"The work of the Import Committee is two-fold:

"First, it examines and prepares the technical data for the industry in connection with tariff legislation. Second, it acts for the whole industry in watching imports and preventing the evasion of tariff laws.

"These functions are of great value to the industry and cannot be attempted by Divisional Associations.

"The Import Committee has been frequently called upon to furnish expert advice to the government—in preventing illegal importations and in the technical interpretation of the paper schedule of the Tariff Act. It has also closely followed the Customs Court cases involving paper.

"The value of the Import Committee should be judged not only by the number of illegal importations that it apprehends, but also by the number of such violations which it undoubtedly prevents by its known vigilance."

LONGVIEW FIBRE HAS NEW BOAT

A new boom boat was delivered February 28th to the Longview Fibre Company of Longview, Washington by the builders, the Astoria Marine Construction Company.

The craft is a semi-tunnel stern type, 28 feet long, with an 8-foot beam. It draws but 28 inches of water and is powered by a 70-horsepower Hall-Scott reduction gear motor. The boat is of exceptionally heavy construction.

It is to be used by the Longview Fibre Company in log booming work and is designed for quick maneuvering. It is equipped with monkey rudders and steers equally well in both forward and after motion.

GARDNER WITH PENN SALT

Mr. Bryson R. Gardner joined the Pennsylvania Salt Manufacturing Company organization several months ago. He has returned to Tacoma, his former home.

Mr. Gardner has had a wide experience in the heavy chemical industry, having been engaged in chemical sales and service work since his graduation from the University of Washington in 1928. From 1928 to 1931 he sold chemicals in Los Angeles and was then transferred to New York, where he made his headquarters for four years.

In 1933 he married Miss Evelyn Booth of Seattle. As "Brick" Gardner, he was a well known athlete during his college days, first at Northwestern and later at the University of Washington.

FOREST TO MANAGE CROSSETT MILL

Mr. K. A. Forest has been selected as manager of the kraft pulp and paper mill to be built by the Crossett Lumber Company at Crossett, Arkansas.

Mr. Forest was for a number of years with the Crown-Willamette Paper Company, kraft pulp mill at Camas, Washington. Recently he has been associated with Mr. L. A. DeGuere, pulp and paper mill engineer of Wisconsin Rapids, Wisconsin.

PULP MILLS COOPERATE TO SAVE SALMON RUN

An excellent example of cooperation between the fisheries and other manufacturing interests for the maintenance of the salmon resource was seen at Oregon City, Ore., where the Crown Willamette and Hawley pulp mills closed down for several hours last July 20th to permit hundreds of salmon to pass over the fishways. The shutdown allowed enough water to go through the fishways for the salmon to swarm into the upper river.

Officials of the Oregon Fish Commission state that these companies, as well as the Portland Electric Power Co., and other commercial firms at Oregon City have extended real cooperation in handling the run at Willamette Falls during the last eight years. "I have never found it necessary to in any manner force them to display their cooperative spirit," says M. T. Hoy, master fish warden. "They have been willing and anxious at all times to comply with any and all requests within reason, and to assist in any manner possible."

An example of such cooperation was provided during repairs and rebuilding of the fishway in September, 1934, when, owing to low water, it was difficult to handle the barges of sand and gravel. Each morning when the barges were towed through the locks, the mill on that side voluntarily stopped all turbines long enough to raise the water and provide safe and ready passage.

It is pointed out that the closing of the mills to permit the salmon migration is necessary only at periods of extreme low water, when because of the large volume used by the four or five commercial mills, the head is drawn down in the impounded area to a level well below the top of the concrete dam, resulting in a shortage of water in the fishways and the area immediately adjacent. At such times the mills shut down long enough to raise the head to such a level that sufficient water is available for the fishways and that part of the river below, between the ladder and the tail races of the plants.

In the spring of 1934, due to low water, it was necessary to ask the mills to shut down on five different occasions, at which times all the plants were closed for three hours. A shut-down of this duration, Mr. Hoy says, is more than sufficient, and by the time the wheels are started again the entire dam is spilling water to a depth of 1 to 2 ft. For the eight or nine years that he has had personal supervision of the Oregon City fishway, Mr. Hoy has found no real difficulty either in passing the salmon migration over the falls or in obtaining the full and hearty cooperation of the industrial pants.

B. C. FIRE PROTECTION

British Columbia expends $400,000 on forest fire protection annually, and this amount is too low, Chief Forester E. C. Manning told the forestry committee of the legislature at a special inquiry. The government put up $300,000 and private timber owners the remainder. The proportions are adjusted according to the amount of timber held by the government and the volume held in private hands.

Ernest Bakewell suggested that the contributions should be assessed on the value of the timber rather than on acreage because private interests owned the best stands and would then pay more; but Mr. Manning contended that it would be almost hopeless to try to compute the fund on that basis.

T·R·A·D·E • T·A·L·K

of those who sell paper in the western states

+ + + +

JACK LEATHERMAN PROMOTED

The many friends of John H. Leatherman will be glad to hear of his promotion March 1, 1936, to the managership of the Sacramento, California, division of Blake, Moffitt & Towne, as announced by Mr. O. W. Mielke, general manager of this pioneer Pacific Coast wholesale paper firm, which was founded in San Francisco in 1855.

Since 1930, Mr. Leatherman has been manager of the printing paper department of Blake, Moffitt & Towne's Seattle division. His services with the company began in 1921 when he entered its employ as salesman. For six years he represented the company in Bellingham, Washington, until advanced to the post which he now leaves for the Sacramento managership. His appointment took effect on March 1st.

Mr. Leatherman is a native of Wisconsin, but moved west to Dayton, Washington, in 1894, where his father was superintendent of schools. After leaving Whitman College he was employed as salesman for Powell-Sanders Company, wholesale grocers of Spokane, until 1917. When the United States entered the World War, he went overseas with the 91st Division, where he saw active service at Saint Mihiel and in the Argonne Forest. He was seriously wounded, and was discharged from the service with an excellent record. Mr. Leatherman then entered the employ of the Portland Flouring Mills, with sales territory from Salt Lake City to the Coast.

John Leatherman has been closely identified for many years with civic activities in Seattle and elsewhere on the Coast, and is now district vice-president of the Pacific Coast Advertising Clubs Association and is also a past president of the Advertising Club of Seattle. He has served as treasurer and president of the Seattle Club of Printing House Craftsmen, is a past district representative of the North Pacific District of the International Club of Printing House Craftsmen, and is now a member of its educational commission. In 1935 Mr. Leatherman presented at the convention of the Pacific Coast Advertising Clubs Association in San Diego the claims of Seattle for the 1936 convention, with the result that this important convention will be held in Seattle July 5th to the 9th of this year. He has been active in the councils of the Seattle-Tacoma Paper Dealers Association, and is a member of the Publicity Committee of the Seattle Chamber of Commerce, which is responsible for advertising the city and the Evergreen Playground to the world through national publications. He is also a member of the Inglewood Country Club and the Arctic Club. His hobbies, when he finds time to indulge them are golf and fishing.

When Mr. Leatherman left Seattle for Sacramento he was accompanied by Mrs. Leatherman and their young daughter Frances. Mrs. Leatherman has long been prominent in Seattle's musical circles, with service on the board of directors of the Music and Art Foundation.

Mr. Leatherman's post in Seattle will be capably filled by Mr. James C. Whitelaw, who has been appointed as general sales manager, as announced by Mr. J. W. Thompson, vice-president and manager of the Seattle Division.

ARTHUR TOWNE RETURNS FROM EAST

Arthur W. Towne, Blake, Moffitt & Towne, San Francisco, returned to the coast early in March from New York, where he attended the annual convention of the National Paper Trade Association.

At this meeting Harold Zellerbach, Zellerbach Paper Co., San Francisco, retired as national president and was succeeded by Oswald F. Marquardt, Marquardt & Co., Inc., New York paper jobbers.

The only westerners Mr. Towne saw at the convention were Mr. Zellerbach, B. G. Ewing, Ewing Paper Co., Spokane and Joe Heilbronn, Heilbronn Paper Co., Manila, P. I.

Mr. Towne is on the board of directors of the national body and a member of the governing committee of the wrapping paper division, the merchandising committee of the wrapping paper section, the groundwood book committee and the newsprint committee.

Mr. Zellerbach went from New York on a vacation trip during which he will fly from Guatamela to Mexico City and from Mexico City to San Francisco, arriving home late in March.

WAGNER ON COAST

Frank E. Wagner, director of the printing testing department of the S. D. Warren Co., is on the coast from Cumberland Mills, Me., giving talks on craftsmen's clubs on "Paper, Printing, Presses"

THE NINETEENTH ANNUAL CONVENTION OF THE PACIFIC STATES PAPER TRADE ASSOCIATION

will be held at the

HOTEL DEL MONTE
DEL MONTE, CALIFORNIA
Thursday, May 14, to Saturday, May 16 (inclusive)

to which you are cordially invited to attend.

The customary procedure will be followed of dividing the time between BUSINESS SESSIONS and the usal GOLF TOURNAMENT, the qualifying round of which will be played Friday afternoon, May 15. This will be the EIGHTEENTH ANNUAL GOLF TOURNAMENT of the PACIFIC COAST PAPER MANUFACTURERS.

The regular JOINT MEETING OF MERCHANTS AND MANUFACTURERS will be held on Thursday evening, May 14, at 8 o'clock, for a discussion of their mutual problems.

The usual provisions for RECREATION and the ENTERTAINMENT OF THE LADIES will be made.

The ANNUAL BANQUET will be a joint affair with the GOLF DINNER, which will take place on Saturday evening, May 16.

Tentative reservations have been made with Hotel Del Monte. However, it will be necessary for you to advise this office as soon as you can as to the number of rooms wanted, with or without bath, and the date of arrival.

Anticipating the pleasure of having you join us in our annual gathering,

Yours very truly,
H. ARTHUR DUNN,
Secretary
PACIFIC STATES PAPER TRADE ASSOCIATION

ZELLERBACH PROMOTES LEDDY AND NEUMANN

Promotions came last month to two men at the Zellerbach Paper Co., San Francisco. One was Thomas A. Leddy, who was named general sales manager of the San Francisco division and the other was A. F. Neumann, appointed divisional sales manager of the fine paper department.

Tom Leddy formerly was in the operating department of Zellerbach's at San Francisco and Los Angeles and joined the sales department comparatively recently. Bert Neumann has been on the sales staff for some years. He is a son of the late Abe Neumann, who, when he died about two years ago, was the oldest Zellerbach employee in point of service.

COLUMBIA PAPER SILVER JUBILEE

Columbia Paper Company, one of British Columbia's pioneer and biggest wholesale paper organizations, celebrated its silver jubilee February 15 with a dinner at Hotel Vancouver, Vancouver, B. C., when illuminated addresses were presented to President C. J. Kay and Vice-President Karl A. Smeed in appreciation of twenty-five years leadership.

The presentation was made by Thomas Scott, the company's first employee. Other officials present at the dinner were H. E. Miller, general manager; C. H. Dennis, manager of the wrapping division, and G. H. King, secretary-treasurer.

Columbia Paper Company was incorporated in December, 1910, by Mr. Kay, Mr. Smeed and W. W. Wolfenden, all prominent in Vancouver business life. They commenced operations on February 15, 1911. Their small warehouse was then located at 1043 Hamilton Street. Later, as the business grew, larger premises were secured at 1038 Hamilton Street. Mr. Wolfenden's interest in the business was taken over by his partners in 1926.

In 1930 the company's present warehouse, a reinforced concrete building, with floor space of 63,000 square feet, at the corner of Nelson and Homer streets, was built by Columbia Properties, a subsidiary company. A staff of sixty-four, of whom fourteen are salesmen, is now employed.

Thomas Scott has been manager of the company's office in Victoria since 1916.

McKEE

Jim McKee, president of the McKee Salesbook Co., passed away at the Glendale plant March 5 after an attack of pneumonia. His company is a large operator on the Pacific Coast, having converting plants at Glendale, Oakland, Seattle, etc. Mr. McKee lived at Glendale in a penthouse built atop the factory.

KNODE DULY IMPRESSED

Sam Knode of the Albermarle Paper Co., Richmond, Va., said on his recent visit that at last he was able to return to the East and tell the jobbers there that he had visited a plan where employees used roller skates and bicycles—a novel scene he viewed at the new Zellerbach establishment.

POLLARD CREDIT MANAGER

W. R. Pollard, formerly assistant credit manager for the Sierra Paper Co., Los Angeles, has succeeded to the post of credit manager, following the resignation of R. A. Cook, who returned to a similar position with the J. J. Haggerty Co. store here.

OXFORD ISSUES NEW SAMPLE BOOK

The Oxford Paper Company in February issued a new Polar Superfine Coated sample book for the Oxford sample cabinet.

The sample book contains examples of fine color printing and halftone work. It has been distributed to jobbers and paper consumers throughout the country.

FRANK COLLINS PROMOTED

Mr. Frank J. Collins has been promoted to be office and credit manager for the General Paper Company's San Francisco office. He has been with General ten years.

TOWNSEND A FREQUENT COAST VISITOR

A frequent San Francisco visitor from Los Angeles is James G. Townsend who, with Harry Phillips, owns the Sales Service Corp., with warehouses in both cities. This firm represents eastern paper mills, among them Straubel Paper Co., Diana Mfg. Co., American Lace Paper Co., Kleen Products Co. and Superior Box Co.

Mr. Townsend reports the recent death of A. Bothe, president of the Kleen Products Co. at North Wales, Pa.

THE NEW WESTVACO BOOK

Did'ja ever see a picture of a pin dropping? Fell, there's one in the new bound copy of "Westvaco Inspirations for Printers," which is issued by the West Virginia Pulp & Paper Co. George L. Rodier, San Francisco, Pacific Coast representative of this company, is justly proud of this fine issue, which is a big source book, almanac, encyclopedia, general reference work and idea container for printers, advertising people, engravers and others interested. There are handsome reproductions in colors of outstanding advertisements and Westvaco's own striking panels. Of course it is printed on Westvaco paper.

WE CORRECT AN ERROR

Felix Korn worked for twenty-five years with Zellerbach Paper Co. to get a service pin and his name in PACIFIC PULP & PAPER INDUSTRY. Then it was spelled wrong. The Felix "Cohn" who was given a 25-year pin on Page 28 of our last issue was really the popular Felix Korn, who is considerable of a yachtsman 6 PULP 2745 March 6 gilmore on San Francisco Bay and is looking forward to an interesting season on the water.

ZAL ALTER MARRIES

Wedding bells rang in March for Zal Sheldon Alter, son of Marcus Alter, president of the Commercial Paper Co. of San Francisco. Young Mr. Alter is vice-president of the paper firm and is going on in the business. His bride was Miss Jane Wasserman of Santa Rosa. The groom is a University of California graduate.

MURPHY VACATIONS

Gordon Murphy, sales manager of the fine paper department for the Zellerbach Paper Co., Los Angeles, took three weeks' vacation in February, returning aboard the Malolo on March 4. Being an eligible bachelor, it is reported he left Los Angeles during February because if it being Leap Year, and was at some pains to be on the high seas on the fateful day of Feb. 29.

CLARK JOINS GRAHAM PAPER COMPANY

Mr. Robert C. (Budge) Clark, manager of the sales promotion department for the new Kansas City branch of the Zellerbach Paper Company, resigned early in February to become sales manager for the Graham Paper Company with headquarters at St. Louis.

Mr. Clark formerly was manager of the Zellerbach Fresno office and later was in their Los Angeles Division before going to Kansas City when the Zellerbach Paper Company acquired the Lane Paper Company there.

PAPER SPECIALTY CORPORATION REORGANIZED

The Paper Specialty Corporation, Portland, was recently reorganized and has moved to larger and more convenient quarters at 907 N. W. Irving Street, Central Terminal Building, where the company has 40,000 square feet of space with railroad siding for incoming carload shipments.

The battery of automatic machines for the manufacture of "Shamrock" food trays will be augumented shortly by new high speed equipment, which will increase the production of die cut paper products.

Arrangements have been made with the Cupples Company, as manufacturers agents, and orders have been coming in in satisfactory volume. Prices advanced just prior to the first of the year. George W. Houck is manager.

HUNT TRANSFERRED

Mr. Chapin Hunt of the Zellerbach Paper Company's Sacramento office has been transferred to their new Kansas City branch.

80% of OFFICE WORK IS SEEING

•

Low levels of lighting handicap the office worker in speed, accuracy and comfort.

Adequate office lighting is a good investment.

Let us help you analyze your lighting requirements.

•

Puget Sound Power & Light Company

"To Best Serve the Public Interest"

ZELLERBACH'S NEW LOS ANGELES WAREHOUSE FEATURES EFFICIENT STOCK HANDLING

The West's finest paper house, and one of the most modern and efficient in the entire country, is the new distributing plant recently opened in Los Angeles by the Zellerbach Paper Co. Designed for greatest ease and simplicity in handling paper products from receiving dock to the customer, this unit places a new meaning on the word "service" in the paper jobbing business.

The major feature of the structure is the manner in which paper goes through the plant with a minimum of handling. Alongside the south side of the building is the spur track, from which railroad cars may be unloaded directly into the warehouse. By spotting the car opposite the door leading directly into the proper warehouse section, shipments are unloaded at the proper point, and placed in storage in an adjacent bin or stack awaiting further shipment.

On receipt of orders, the paper is placed on a hand truck and taken a short distance across to the northern side, where the truck is moved to the proper spot on the shipping dock by means of an overhead conveyor chain to which the truck handle is hooked. The whole system is simplicity itself, with no waste movements.

The building itself covers an area of 200,000 square feet, is of sawtooth roof construction with no windows below the ceiling line, and is built of reinforced concrete. Itis located at 3000 East 12th St., the corner of Evergreen St., close to the downtown section, but free from traffic and parking troubles.

On entering the building, one goes into the general offices, with information and order desk near the entrance. On the south side are the executive offices of Mason B. Olmsted and Philo K. Holland. The sales department adjoins the entrance on each side, and to the north is the purchasing department, employment office, credit department, etc. To the rear is the advisory department. The center of the large office is occupied by the order desk, with seven rows of showcases on each side, in which are displayed various items of the specialty items carried by the company.

The air of quiet efficiency in the office is particularly noticeable, in part due to the fact that the general accounting department is located in a separate room to the north, eliminating most of the noice commonly found in paper jobbers' offices. The telephone switchboards are also located in a separate room set above the general floor level. By an ingenious system of mirrors, the operators are able to see the entire office, noting whether people are at their desks or not, a notable feature in speeding telephone service.

Behind the general offices, to the east, is the waiting and will-call department on the north, and on the south side is a large assembly room. From this point on east, the building is occupied by the warehouse.

The first warehouse department is the stationery stock room. Next comes the printing paper department, with all stock in bins which are laid out in logical manner and tagged for ease in filling orders. The following section to the east is the wrapping paper department, including twine, toilet tissues, napkins, etc., in both tiers and bins. Bulk merchandise such as shingles, roll roofing, roof coating material, etc., is stocked at the extreme eastern end.

In all departments the movement of the product is the same—simply from the railway car to warehouse stock, and then directly on in the same straight line to the conveyor serving the shipping dock, at which trucks may load under cover. Even the orders sent from the office to warehouse are carried on a series of moving belts, and certain of the warehouse employees go about on roller skates to save time and energy. The entire warehouse floor is of concrete.

In this warehouse are the consolidated stocks from the former location at 220 South Los Angeles St., and from three outside warehouses, a point which makes apparent the savings in handling accomplished by the new building.

Lighting in the plant is particularly good, with indirect northern daylight that, even on dull days, is sufficient to make the use of artificial lighting unnecessary. The offices are completely air conditioned also, and both offices and warehouse are fully protected from fire by sprinkling systems.

TICUOLET TO PLAN GOLF MEET

G. J. Ticuolet, Crown Willamette Paper Co., San Francisco, has been named chairman of the committee of paper mill men who will handle the golf tournament held in connection with the Pacific States Paper Trade Association at Del Monte May 14, 15, 16. Others on the committee are W. J. Gray, Paterson Parchment Paper Co., Andrew Christ, Jr., Western Waxed Paper Co., A. Johnson, mill representative, and M. M. Baruh of the Englander Draying Co. Mr. Baruh has been seriously ill, but is recovering and it is hoped he'll be on the job at Del Monte.

Chris Allair, the A. P. W. Paper Co. representative on the Pacific Coast, is the defending champion this year, having done the title last May. He was runner-up the year before.

In an exclusive interview with PACIFIC PULP & PAPER INDUSTRY, the titleholder admitted he was in the pink of condition for the match and was practicing as often as possible at his home club, Sequoia of Oakland. Modestly, however, he said honestly he didn't expect to win again and offered to pick the next titleholder.

This golf tournament will be the eighteenth annual event of its kind. It will be on a handicap basis—36-hole medal play for gentlemen and 18-hole medal play for ladies. In addition, there will be a blind bogey contest, a gentlemen's approach and putting event, ladies' putting contest and a mixed two-ball foursome. Trophies will be distributed at the convention dinner Saturday evening, May 16.

Chairman Ticoulet asks that prospective participants mail their entries to him at 343 Sansome St., San Francisco, furnishing their handicap.

There's some more good news for the paper trade conventioneers in the announcement that the Calcutta Pool is being revived this year—the first in several years. W. J. Gray is handling this.

L. A. MILL REPRESENTATIVES MEET

Thirty Los Angeles paper mill representatives met February 27th at the Hotel Mayflower, for their semi-monthly noon business meeting.

Guests at the meeting included H. W. Headen, introduced by Ralph Reid, Sam Knode of the Albermarle Paper Co. at Richmond, Va., Phil Isler, secretary of the Paper & Bag Institute, San Francisco, and Syl Sitter of the Menasha Products Co., Menasha, Wis., who has recently moved to Los Angeles.

Tom Moffitt of the McCormick Steamship Co. and of the Junior Chamber of Comerce, talked to the group on Harbor Day, which will be Saturday, May 16, the opening day of Foreign Trade Week. He described the features planned, such as speedboat races, the Japanese pageant Fish Harbor, the mock attack on Fort MacArthur, and invited the mill men to hold a meeting at the harbor during this time. The purpose of the day is to emphasize the importance of the harbor as an industrial unit, a fact well appreciated by paper men, many of whom have all of their products shipped here by water.

Sam Knode of the Albermarle Paper Co., Richmond, Va., spoke of the work of the Salesmen's Association of the Paper Industry, an organization of which he was president for two years. He also forecast advances in prices on certain paper products, such as kraft, some fine papers, etc. Mr. Knode was on his annual Pacific Coast trip.

The committee for the February meeting, A. A. Ernst, L. J. Mork and C. J. Jenkins, had promised the organization that if 35 members were present, the Hon. G. Dewey Megel would not be permitted to resume his stirring address of the previous meeting. This provision was voided by the lack of five members; nevertheless, Mr. Megel voluntarily postponed his speech, prefering to wait until a larger crowd is present. No one remembers what the address was to be about, but it furnished an opportunity to pull the leg of the Hon. Dewey, who has proved that he can take it.

The March gathering is to be held Thursday evening, March 26, and will probably be at the same place, the Mayfair Hotel, although this still remains for the decision of the committee, Bert Reynolds, Ralph Reid, Jerry Madigan and Roy Gute.

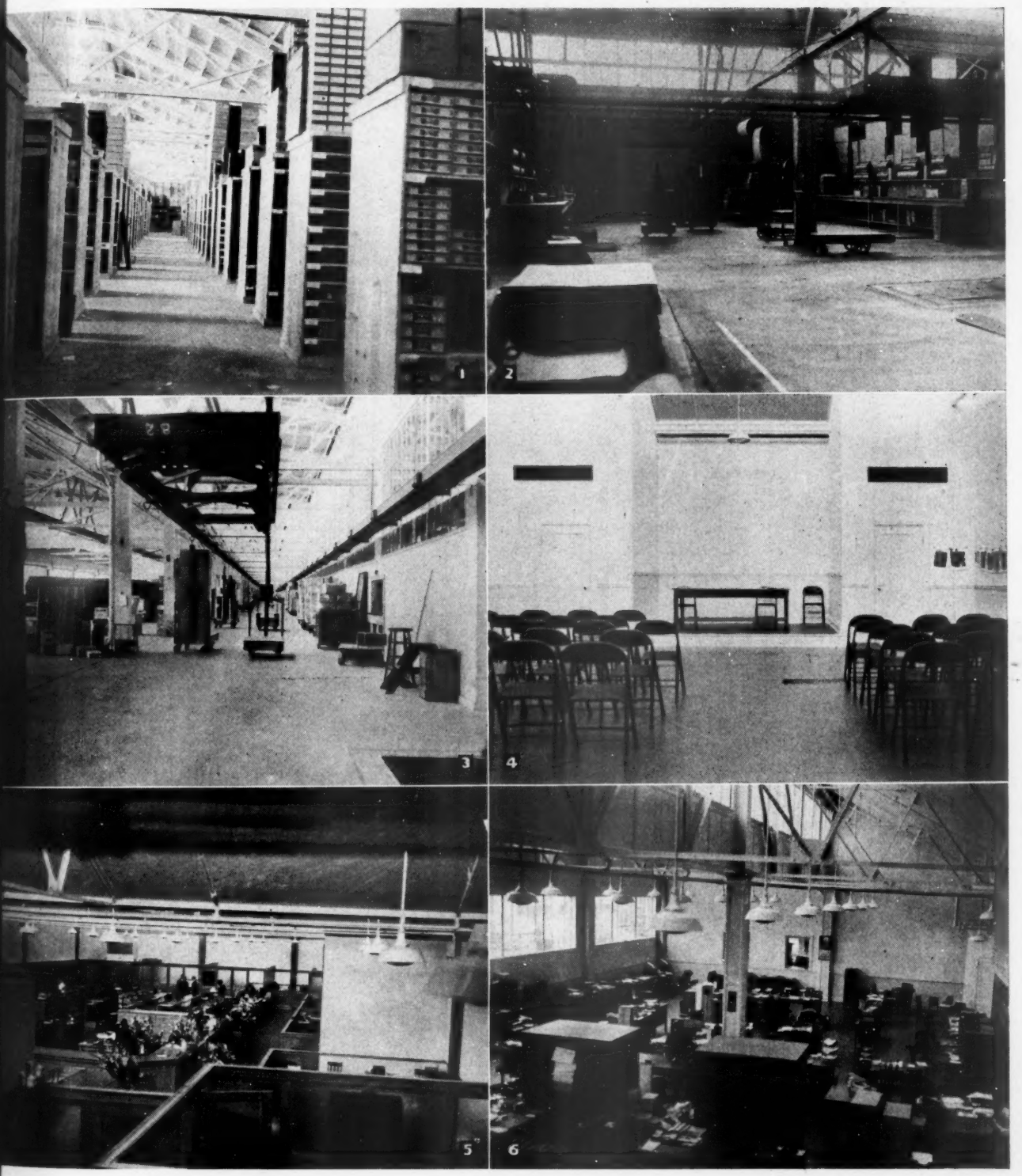
This meeting will be the last under the present administration, an election of new officers being scheduled for April.

VAUGHN ON COAST

Grady M. Vaughn, president of the Neypaco Paper Co., New York City, was a Pacific Coast visitor recently. Neypaco makes drawing and tracing papers. In San Francisco Mr. Vaughn visited W. J. McCormack, American Writing Paper Co., and said he found business much better in every city he had visited. Mr. Vaughn has two brothers in Los Angeles.

THE ZELLERBACH PAPER COMPANY'S LOS ANGELES OFFICE AND WAREHOUSE

Numbers 1, 2 and 4 show the exterior of the efficiently designed building. No. 3 is the bulk goods department with roofing rolls, etc. No. 5 shows stock cutting room. No. 6 is a view of the stationery department and wrapping section.



HAS EVERY MODERN FEATURE FOR THE EFFICIENT HANDLING OF PAPER

Picture No. 1 shows the method of storing paper stock in bins and stacks. This view was taken in the stationery department. No. 2 is the printing paper wrapping department. No. 3 is the loading dock, with the overhead conveyor shown pulling the floor trucks. No. 4 is a view of the salesmen's assembly room. The general offices are shown in No. 5, and the accounting offices in No. 6.

Orr Felts
—for Longer, Better and Most Economical Service
That is no sweeping platitude. It is true — absolutely true. Mills that have taken the slight trouble required to investigate can vouch for the accuracy of the statement —which mills, by the way, are today Orr users and Orr boosters. The line is complete—contains the exact length, width and texture your particular machine must have.
An inquiry will bring an Orr Felt specialist qualified to suggest the particular felt that will remove the most water — AND DO IT EASIEST.
The ORR FELT and BLANKET CO.
PIQUA, OHIO
Pacific Coast Representative: WALTER S. HODGES
414 Terminal Sales Bldg., Portland, Oregon

SERVICES HONORED

John Albert Todd, who joined the Zellerbach Paper Company in Seattle in 1906, was presented March 7th with a pin emblematic of his thirty years of service. Todd, a special salesman who has held varied positions with the company during his three decades as an employee, received the pin from A. W. Akers, Seattle division manager, at a meeting attended by sixty employes at the company offices, 1254 First Ave. S.

LOS ANGELES TISSUE MAKING NAPKINS

The Los Angeles Tissue Co., which recently moved its plant from that of the U. S. Paper Co.'s new building to 2149 Sacramento St., Los Angeles, has started the manufacture of paper napkins. The company has been manufacturing toilet paper for some time, and the new line is its first additional product.

The latest type of napkin folder, a beltless vacuum folder made by the Paper Converting Machinery Co., reached Los Angeles late in February, and operations were started about March 15. The machine turns out 800 napkins per minute.

Sam Abrams, well known Los Angeles paper jobber, is personally interested in this concern and the new napkins venture. L. Young is manager of the plant.

ED SMITH ACQUIRES NEW LINE

Ed M. Smith, Los Angeles mill representative who handles a number of outstanding lines, including Rhinelander, Crystal Tissue and Tuttle Press, is now representing the Crystal Tube Co., Chicago, line. The company converts Sylphwrap, products which are handled exclusively on the Pacific Coast by Blake, Moffitt & Towne.

Mr. Smith says that so far this year, business looks better than for the first two months of 1935, and that the eastern mills continue talk about price advances that are expected to take place.

ENGLE VISITS SOUTHERN CALIFORNIA

Allen Engle, president of the Pacific Waxed Paper Co., Seattle, was expected to make his appearance in Los Angeles around March 15 or 20.

McBRIDE IN ARIZONA

W. A. McBride of the Lily Tulip Cup Corp., Los Angeles, planned a trip to Arizona for about the middle of March, intending to visit the trade at Tucson and Phoenix.

O'KEEFE EAST

Tom A. O'Keefe of the Sierra Paper Co., Los Angeles, left at the end of February for New York and Chicago, for a stay of about three weeks. One of the main purposes of his trip was to attend the managerial meetings of the Butler Paper Co., Chicago, the parent organization. Mrs. O'Keefe, his bride of three months, accompanied him on the trip.

GENERAL'S BUSINESS INCREASES

Lew Gronich, new general manager of the General Paper Co. at Los Angeles, reports that February business showed a large increase, bringing the total to a higher point than for any month in the last year.

The company now has 32 salesmen on the job, a recent increase of nine men. Mr. Gronich is spending most of his time out in the field, meeting customers with his men, and teaching his special brand of selling.

General is now installing a promotion department for printers and advertising men, which will include service straight through from the original idea of layout, copy and complete dummy.

JANUARY NEWSPRINT STATISTICS

Production in Canada during January, 1936, amounted to 227,955 tons and shipments to 181,403 tons, according to the News Print Service Bureau. Production in the United States was 79,361 tons and shipments 75,388 tons, making a total United States and Canadian news print production of 307,316 tons and shipments of 256,791 tons. During January, 26,348 tons of news print were made in Newfoundland and 171 tons in Mexico, so that the total North American production of the month amounted to 333,835 tons.

The Canadian mills produced 25,996 tons more in January, 1936, than in January, 1935, which was an increase of 13 per cent. The output in the United States was 937 tons or 1 per cent less than in January, 1935, in Newfoundland 1,664 tons or 6 per cent less, and in Mexico 1,895 tons less, making a net increase of 21,500 tons, or 7 per cent above January, 1935.

Stocks of news print paper at Canadian mills were reported at 76,658 tons at the end of January and at United States mills 14,194 tons, making a combined total of 90,852 tons compared with 40,327 tons on December 31, 1935. Considerable tonnage was accumulated at points from which water shipments will later be made.